Revised 9/03/03
— no comment.

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Silver Spring, MD 20910

JUL 29 2003

MEMORANDUM FOR: Distribution*
Paula N. Evans for

FROM: Virginia M. Fay
Chief, Domestic Fisheries Division

SUBJECT: Amendment 77 to the Fishery Management Plan for the Groundfish in the Bering Sea and Aleutian Islands

The North Pacific Fishery Management Council has submitted the attached subject amendment for formal agency review, approval, and implementation by the National Marine Fisheries Service (NMFS). In addition to the amendment, an environmental assessment, a regulatory impact review and an initial regulatory flexibility analysis are also attached. On July 22, 2003, NMFS published a notice of availability of the amendment for public review and comment. The proposed rule will be published soon.

This amendment would continue to apportion the Bering Sea and Aleutian Islands Management Area (BSAI) Pacific cod total allowable catch (TAC) among the fixed gear sectors. In addition, the amendment would further split the pot sector share of the TAC between pot catcher/processors and pot catcher vessels. Amendment 77 is intended to maintain the stability of the fixed gear Pacific cod fishery.

Please provide your comments (including "no comment") by September 8, 2003. If you have any questions, please call Kimberly Marshall at 301-713-2341.

Attachments

*Distribution

F/SF - Dunnigan/Surdi
F/SF3 - Fay, Dubit
F/SF5 - Brainerd, Fricke
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HMS - Rogers
F/CS - Chaves
N/ORM3 - King
GCF - Sathre
GCEL - Kuruc
OGC - Cohen
OPSP - Schreiber/Kokkinakis

Draft FMP language - June 25, 2003
Strike-outs would be removed from the FMP. Bold italicized text would be added to the FMP.

Amendment 77 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area

Section 13.4.9.2 Pacific cod, is revised to read as follows:

13.4.9.2.1 Gear allocations. The Bering Sea and Aleutian Islands management area Pacific cod TAC shall be allocated among gear groups as follows: 2 percent to vessels using jig gear; 51 percent to vessels using hook-and-line or pot gear; and 47 percent to vessels using trawl gear. The trawl apportionment will be divided 50 percent to catcher vessels and 50 percent to catcher processors.

13.4.9.2.2 Seasonal apportionments. The amount of Pacific cod allocated to gear groups under Section 13.4.9.2.1 may be seasonally apportioned. Criteria for seasonal apportionments and the seasons authorized to receive separate apportionments will be set forth in regulations.

13.4.9.2.3 ~~(Applicable through December 31, 2003)~~ Gear allocation among vessels using hook-and-line or pot gear. The Regional Administrator, NMFS, Alaska Region, annually will estimate the amount of Pacific cod taken as incidental catch in directed fisheries for groundfish other than Pacific cod by vessels using hook-and-line or pot gear and deduct that amount from the portion of Pacific cod TAC annually allocated to hook-and-line or pot gear under Section 13.4.9.2.1. The remainder will be further allocated as directed fishing allowances as follows:

(a) 80 percent to catcher/processor vessels using hook-and-line gear;
(b) 0.3 percent to catcher vessels using hook-and-line gear;
~~(c) 18.3 percent to vessels using pot gear; and~~
(c) 3.3 percent to catcher/processor vessels using pot gear;
(d) 15 percent to catcher vessels using pot gear; and
(e) 1.4 percent to catcher vessels less than 60 feet length overall that use either hook-and-line or pot gear.

Specific provisions for the accounting of these directed fishing allowances and the transfer of unharvested amounts of these allowances to other vessels using hook-and-line or pot gear will be set forth in regulations.

Secretarial Review Draft

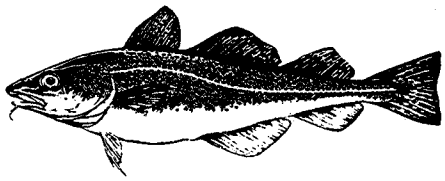
ENVIRONMENTAL ASSESSMENT/REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS

for proposed

AMENDMENT 77

to the Fishery Management Plan for
Bering Sea/Aleutian Islands Groundfish

Allocation of Pacific Cod Among Fixed Gear Sectors



Abstract: This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis analyzes the impacts of continuing separate apportionments of the BSAI Pacific cod TAC among the fixed gear sectors (hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, pot catcher vessels, and pot/hook-and-line vessels <60' in length). This action would continue to further split the 51 percent of the BSAI Pacific cod TAC allocated to fixed gear vessels among the above sectors based on recent catch histories. This action continues the allocations approved by the North Pacific Fishery Management Council (Council) and implemented under BSAI Amendment 64 in September 2000, with a further split of the pot sector's apportionment between pot catcher vessels and pot catcher processors. This action is necessary to continue the fixed gear allocations, as the original amendment implementing those allocations will expire on December 31, 2003. This action is intended to respond to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by the recent increases in the market value of cod products and the general reliance of the fixed gear fleets on this fishery. The concern is that, absent a gear split, there is no mechanism to prevent one sector from increasing its effort in the fishery and eroding another sector's relative historical share. The objective of the proposed FMP amendment is to maintain stability in the BSAI fixed gear Pacific cod fishery until comprehensive rationalization is complete.

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July 11, 2003

Table of Contents

List of Tables

List of Figures

Executive Summary

Beginning in 1997, Amendment 46 to the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands Area (FMP) allocated the total allowable catch (TAC) for Bering Sea/Aleutian Island (BSAI) Pacific cod among jig gear, trawl gear, and fixed gear (hook-and-line and pot). It reserved two percent of the TAC for jig gear, 51 percent for fixed gear, and 47 percent for trawl gear. The amendment also split the trawl apportionment between catcher vessels and catcher processors 50/50, but did not split the fixed gear allocation between hook-and-line and pot vessels.

At its April 1999 meeting, the North Pacific Fishery Management Council (Council) initiated an analysis to examine the effects of splitting the fixed gear allocation of Pacific cod between the various components of the fixed gear sector in the BSAI (BSAI Amendment 64). In October 1999, the Council approved BSAI FMP Amendment 64, which further split the fixed gear allocation of Pacific cod among the hook-and-line catcher processors, hook-and-line catcher vessels, and pot sector in the BSAI. Under this amendment, the Council approved the following allocations as a percentage of the fixed gear share of the BSAI Pacific cod TAC:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels <60'
- 18.3% pot vessels

The above percentages were based closely on the historical harvest shares of each gear sector from 1995-1998, with an additional provision for catcher vessels <60'. Amendment 64 was approved by the U.S. Secretary of Commerce (Secretary) in July 2000, and implemented by final rule on August 24, 2000 (65 FR 51553). Amendment 64 became effective on September 1, 2000. Included in the final rule for Amendment 64 is a sunset date of December 31, 2003, meaning that the regulations implementing the allocations established for the fixed gear sectors will expire at that time. Thus, continuing the allocations of Pacific cod among the hook-and-line and pot gear sectors (or selecting new allocation percentages) requires Council and Secretarial approval of a new amendment. This Environmental Analysis/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for BSAI Amendment 77 represents a new amendment proposed to continue apportioning the fixed gear share of the BSAI Pacific cod TAC among the fixed gear sectors.

At the same time the Council initiated the original analysis for Amendment 64, an analysis was initiated to support a follow-up amendment (BSAI Amendment 67) to add a Pacific cod endorsement to Federal licenses held by fixed gear vessels that qualify for a BSAI area endorsement under the current License Limitation Program (LLP) and meet specified qualification criteria. In April 2000, the Council defined qualification criteria for hook-and-line catcher processors, hook-and-line catcher vessels ≥60', pot catcher processors and pot catcher vessels ≥60'. Because the Pacific cod endorsement is added to a vessel's Federal LLP license, the resulting number of vessels in each sector that qualify under the endorsement criteria depends on the number of vessels that also hold an LLP license. Amendment 67 was approved by the Secretary of Commerce in November 2001, and the requirement for a cod endorsement became effective January 1, 2003. Thus, the number of fixed gear vessels that are eligible to fish the BSAI Pacific cod allocations at issue in Amendment 77 was reduced starting in 2003.

In addition, at the time the Council approved Amendment 64, it acknowledged that a further split of the pot sector share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels might be necessary to ensure the historical harvest distribution between those sectors of the fishery. Concern was expressed that the pot sector needed the stability of a direct gear allocation, much like was done for the hook-and-line sectors under Amendment 64, and the trawl sectors previously under

Amendment 46. However, because the public had not been given notice that this action may be taken under Amendment 64, the Council decided to delay action specific to the pot sector and include the proposal in a follow-up amendment (BSAI Amendment 68). Thus, in June 2002, the Council considered BSAI Amendment 68 to create separate allocations for the pot catcher processor and pot catcher vessel sectors. The Council ultimately decided to take no action on the amendment, deferring action on the pot allocations until it could be rolled into one amendment package that would also address the issues associated with the expiration of Amendment 64.

Like the original action, proposed Amendment 77 is intended to respond to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. While participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories, absent a gear split, there is no mechanism that would prevent one sector from increasing its effort in the fishery and eroding another sector's relative historical share. Because the new amendment (BSAI Amendment 77) to allocate Pacific cod among the fixed gear sectors includes an alternative that would also split the pot share of the TAC among pot catcher processors and pot catcher vessels, both issues are addressed in two separate problem statements guiding analysis of the proposed action.

The first problem statement was developed in response to the expiration of the fixed gear allocations under Amendment 64. Amendment 77, which proposes to continue Pacific cod allocations among the fixed gear sectors, addresses protecting the relative historical catch distribution among the fixed gear sectors by apportioning the TAC accordingly; it does not propose alternatives to limit the number of individual vessels entering the fishery. (Limiting individual vessel participation in the fixed gear cod fishery is not addressed in this amendment package. That issue is addressed under BSAI Amendment 67, which requires a BSAI Pacific cod endorsement for hook-and-line and pot vessels ≥60'.) Thus, the first problem statement is applicable to **Alternatives 1 through 3**, which address the overall fixed gear allocations. The second problem statement was developed in response to the concern that the pot catcher processor sector's historical harvest share is being eroded by the pot catcher vessel sector. Thus, the second problem statement is applicable to **Alternative 4**, which could be selected in conjunction with either Alternative 2 or 3. Alternative 4 proposes to split the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to recent catch histories, with four options as to which years would be used in determining the allocations. The complete Council problem statement for Amendment 77, approved in December 2002, is included below.

Problem Statements for proposed Amendment 77 to the BSAI FMP

Problem Statement 1: Overall fixed gear allocations (Applicable to Alternatives 1 -3, formerly under Amendment 64)

The fixed gear fisheries for Pacific cod in the BSAI are fully utilized. The fishermen who hold licenses in the BSAI Pacific cod fisheries have made substantial investments and are significantly dependent on BSAI Pacific cod.

The longline and pot gear allocations currently in place for the BSAI Pacific cod fishery under Amendment 64 expire December 31, 2003. Without action by the North Pacific Fishery Management Council, serious disruption to the BSAI Pacific cod fixed gear fisheries will occur. Prompt action is required to maintain stability in the BSAI fixed gear Pacific cod fishery until comprehensive rationalization is completed.

Problem Statement 2: Separate allocations for pot catcher processors and pot catcher vessels: (Applicable to Alternative 4, formerly under Amendment 68)

The catcher processor and catcher vessel pot fisheries for Pacific cod in the Bering Sea/Aleutian Islands are fully utilized. Pot catcher processors who have made significant long-term investments, have long catch histories, and are significantly dependent on the BSAI cod fisheries need protection from pot catcher vessels who want to increase their Pacific cod harvest. This requires prompt action to promote stability in the BSAI pot cod fishery until comprehensive rationalization is completed.

Alternatives for Consideration

Similar to the original analysis for Amendment 64, this EA/RIR/IRFA for Amendment 77 examines separate apportionments of the BSAI Pacific cod TAC among hook-and-line catcher processors, hook-and-line catcher vessels, and pot gear vessels. In addition to the no action alternative, two alternatives are proposed which would either continue or modify the split among hook-and-line and pot vessels. A fourth alternative, which is applicable in conjunction with either alternative to make the split among the fixed gear sectors, would further split the pot share of the BSAI fixed gear TAC between pot catcher processors and pot catcher vessels. The fourth alternative is therefore only applicable in conjunction with either Alternative 2 or 3, as an overall fixed gear split is necessary in order to facilitate a further split of the pot sector share. The Council approved the following alternatives, options, and suboptions in December 2002 for analysis:[1]

Alternative 1: No action. BSAI Pacific cod allocations for the fixed gear sectors (hook-and-line catcher processors, hook-and-line catcher vessels, pot vessels, and hook-and-line and pot vessels <60') under Amendment 64 would expire on December 31, 2003.

Alternative 2: Status quo. Continue the current BSAI Pacific cod allocations among the fixed gear sectors as originally determined under BSAI Amendment 64:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels <60'
- 18.3% pot vessels

[1]Under Alternatives 2 and 3, suboption (f) of Option 3, dealing with seasonal reallocations from the jig gear sector, was added at the June 2003 Council meeting. It generally falls within the range of the suboptions previously analyzed.

Rollover Options

Option 1: (Status quo) Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: (Status quo) Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

Sunset Provision

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

Alternative 3: Modify the current BSAI Pacific cod allocations among the fixed gear sectors according to catch histories to be determined as a percentage of cumulative catches of BSAI Pacific cod by gear type for: 1995 - 1999.

Option: Include a 1.4% allocation to pot and hook-and-line catcher vessels <60', to be subtracted from the overall fixed gear allocation before the split is made.

Rollover Options

Option 1: Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

Sunset Provision

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

Alternative 4: **(Applicable only in combination with Alternatives 2 or 3)**. Apportion the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories to be determined as a percentage of cumulative catches of the BSAI Pacific cod TAC by pot sector for:

Option 1: 1995-1999
Option 2: 1996-2001
Option 3: 1998 -2001
Option 4: 2000, 2001

Suboption: Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused by a specified date shall be reallocated as follows:

(a) Unused quota from either pot sector would be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors.
(b) Unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessel sector before it is reallocated to the pot catcher processor sector.

Under the no action alternative (**Alternative 1**), each of the fixed gear sectors would compete against the others to harvest the fixed gear share (51 percent) of the BSAI Pacific cod fixed gear allocation. This mirrors the circumstances present in the fishery prior to September 2000, the concern over which prompted initiation of Amendment 64 in 1999. The amendment was proposed to respond to concerns that the stability of the fully utilized BSAI Pacific cod fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. This action was intended to protect the historical harvests of each gear sector and protect those participants with extensive histories and long-term dependence on the fishery. Given the difficulty associated with making predictions regarding effort by the different gear sectors absent a fixed gear split, the no action alternative is characterized in qualitative terms in this document and a baseline of 1995 - 1999 is used as a reference point. There is a discussion provided on whether the problems which spurred the original amendment would continue to exist under the no action alternative and what outcomes may be expected under this scenario.

Alternative 2 would continue the existing allocations that have been in place under Amendment 64 since mid-2000. This means that 80 percent of the fixed gear BSAI Pacific cod TAC would be allocated to hook-and-line catcher processors, 0.3 percent to hook-and-line catcher vessels, and 18.3 percent to pot vessels. These percentages closely represent harvests in this fishery during 1995 - 1998. In addition, a separate 1.4 percent allocation was established for hook-and-line and pot catcher vessels <60' LOA. This small boat allocation was 'funded' through a reduction in the hook-and-line catcher processors' allocation, as the <60' fleet harvested about 0.3 percent of the overall fixed gear TAC during that time period. The action taken by the Council in the original amendment in October 1999 was based on historical data through 1998, the best scientific information available at the time. Since then, catch data for 1999 has become available and is included for consideration under Alternative 3. As the original amendment for the fixed gear split was implemented in 2000, using catch history from the most recent years (2000 and 2001) would essentially be the same as maintaining the existing allocations. Deviations from the current allocations would only occur as the result of rollovers or TAC that was left unharvested.

Alternative 3 would allocate BSAI Pacific cod to the fixed gear sectors based on the actual harvest distribution from 1995 - 1999. The *actual* catch distribution among the fixed gear sectors does not change whether 1995 - 1998 or 1995 - 1999 harvest data are used. Depending on whether a separate allocation is made for <60' catcher vessels, based on actual catch history, the allocations would be as follows: 81.6 percent to hook-and-line catcher processors, 0.1 - 0.3 percent to hook-and-line catcher vessels, 18.0 - 18.1 percent to the pot sector, and 0 - 0.3 percent to the hook-and-line and pot vessels <60' LOA.

Option 1 under Alternative 3 would provide for a 1.4 percent allocation to catcher vessels <60' LOA, taken off the top of the fixed gear share before the split is made among the remaining sectors. Option 1 would modify the allocations as follows: 80.5 percent to hook-and-line catcher processors, 0.3 percent to hook-and-line catcher vessels, 17.8 percent to the pot sector, and 1.4 percent to the hook-and-line and pot vessels <60' LOA. Option 1 was proposed to mirror the allocation the <60' sector currently receives under Amendment 64, but it differs in that under Amendment 64, the small boat allocation came entirely from the hook-and-line catcher processors' allotment, while under Alternative 3, Option 1, the small boat allocation is taken off the top of the fixed gear TAC prior to the split being made. Each sector's allocation receives a proportional decrease as a result.

In addition, under **Alternative 4**, the four options considered by the Council would allocate between 13.2 and 24.2 percent of the pot gear share of the BSAI Pacific cod TAC to pot catcher processors and between 75.8 and 86.8 percent to pot catcher vessels, depending on the years selected to determine the allocations. This is a difference of 11 percentage points among the options. Under Alternative 2, in which the whole pot sector is allocated 18.3 percent of the overall fixed gear cod TAC, this equates to direct allocations of 2.4 percent - 4.4 percent of the fixed gear TAC to pot catcher processors and 13.9 percent - 15.9 percent to pot catcher vessels. Under Alternative 3, in which the whole pot sector is allocated 18.1 percent of the fixed gear cod TAC, this equates to direct allocations of 2.4 percent - 4.4 percent of the fixed gear TAC to pot catcher processors and 13.7 percent - 15.7 percent to pot catcher vessels. Under Alternative 3, Option 1, the allocations would change slightly to 2.4 percent - 4.3 percent to pot catcher processors and 13.5 percent - 15.4 percent to pot catcher vessels (total of 17.8 percent to pot vessels).

The Council considered an amendment (BSAI Amendment 68) to split the 18.3 percent between the pot catcher processor sector and the pot catcher vessel sector in June 2002, but ultimately selected the no action alternative. The Council noted in that decision the pending expiration of Amendment 64 and suggested that a further split between the pot sectors could be considered as an alternative under

reauthorization of that amendment if desired. As related in the problem statement for Amendment 68, the proposal to split the pot sectors' allocation is spurred by a concern that pot catcher processors who have made significant long-term investments, have substantial catch histories, and are significantly dependent on the BSAI cod fisheries need protection from pot catcher vessels who continue to increase their Pacific cod harvest. The original intent of Amendment 64 was to stabilize the Pacific cod fixed gear fishery in a way that preserves the historical character of the fishery, by basing the allocations on historical harvests by the respective gear sectors. The pot catcher processor sector asserts that the same type of split is necessary in the pot sector as was established in the hook-and-line sector under Amendment 64 and is being considered again under Amendment 77.

Rollover Options

Because a sector of the BSAI Pacific cod fishery may not be able to harvest its entire allocation in a year due to halibut bycatch[2] constraints or, in the case of the jig fishery, insufficient effort in the fishery, the Council also provided direction on how reallocated quota should be treated under the original Amendment 64. Thus, there are also several options that address how to reallocate quota among gear types under this amendment package. Note that not all of the rollover options are mutually exclusive.

Currently, under Amendment 64, reallocated quota from the jig or trawl sectors is apportioned 95 percent to hook-and-line catcher processors and 5 percent to pot vessels. This split was based on the actual harvest of reallocated quota from 1996 - 1998. In addition, under the status quo, any unharvested portion of the catcher vessel longline and the <60' pot and longline vessel allocation that is projected to remain unused is reallocated to the hook-and-line catcher processor fleet in September. Both of these provisions are included for consideration under the status quo (Alternative 2) as well as the alternative to modify the existing fixed gear allocations (Alternative 3). In addition, both alternatives include an option (Option 3) to reapportion the jig gear allocation either on a trimester or quarterly basis, or under a regulatory framework in which seasonal jig allocations are established annually during the TAC-setting process. This option would not change the overall jig allocation (2 percent of the BSAI Pacific cod TAC), but would change the way unused jig quota is reallocated. Currently, any unused portion of the A season cod allowance for jig vessels is reapportioned to the B seasonal allowance, and any unused jig quota is reallocated to the hook-and-line catcher processor sector and pot sector, 95 percent and 5 percent, respectively, for harvest before the end of the year. Under this option, quota projected to remain unharvested by the jig sector would be reallocated to the <60' pot and longline sector near the end of each jig season.

Similarly, under Alternative 4, there are suboptions that would reallocate any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused by a specified date as follows: a) unused quota from either pot sector would be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors, or b) unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessel sector before it is reallocated to the pot catcher processor sector.

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[2]The Magnuson-Stevens Act defines "bycatch" as fish which are harvested in a fishery, but not sold or kept for personal use. However, within this EA/RIR/IRFA, "bycatch" is often used interchangeably with "incidental catch," defined in 50CFR679.2 as "fish caught and retained while targeting on some other species, but [not including] discard of fish that were returned to the sea."

Suboption a would mirror the approach taken in the hook-and-line sector under the original Amendment 64, while Suboption b would allocate any quota that is projected to remain unharvested in the pot catcher vessel sector to the hook-and-line sector as a first option. Neither suboption is expected to affect whether fixed gear quota will go unharvested, as it is anticipated that the timing of the reallocations will continue to allow for the full harvest of the quota regardless of which sector receives the quota. Preliminary data indicates that the pot sector did not harvest its entire quota in 2002; therefore, 3,500 mt was reallocated to the hook-and-line catcher processors late in the season. No matter which suboption is preferred, it may be most effective to view the suboptions as setting an order of preference of recipients of reallocated quota, and allow the Regional Administrator to make the inseason determination regarding which sector is capable of harvesting the quota and subsequently allocate the quota to that sector.

The analysis uses 2001 first wholesale prices and the 2003 TAC to derive gross revenues across all sectors under each of the alternatives and options, as well as the 1995 - 1999 fishery, which is used as a point of reference. This issue is unusual in that the fishery under the Amendment 64 allocations (2000 - 2003) is considered the status quo, but does not represent the no action alternative. The status quo represents the catch and revenue distributions that are projected to occur under the current system to apportion the BSAI fixed gear Pacific cod TAC. Conversely, if no action were taken, the current allocations would expire and all of the fixed gear sectors would compete for the 51 percent of the BSAI Pacific cod TAC that is allocated to fixed gear overall. Given the difficulty associated with making a prediction of catch and revenue distributions under that pre-apportionment, "race for fish" scenario, a general characterization of the no action alternative was made in this document.

Hook-and-line catcher processors' estimated gross first wholesale revenues range from $83.8 million to $85.4 million under the Alternatives 2 and 3 to make the allocations among the fixed gear sectors and the baseline (1995 - 1999) respectively. Pot catcher processors are estimated to generate $2.7 million to $5.1 million. A similar range is projected for pot catcher processors should Alternative 4 be selected, in which pot catcher processors and pot catcher vessels receive separate allocations. In sum, total first wholesale revenues, including revenue from catcher processors and shoreside plants receiving catcher vessel deliveries, would range from $107.7 million to $108.1 million under Alternatives 1 - 3.

Ex-vessel prices for 2001 were developed from gross earnings estimates prepared by the Commercial Fisheries Entry Commission (CFEC) so that a range of ex-vessel revenues for catcher vessels could be calculated. Assuming 2001 prices and using the 2003 TAC, ex-vessel revenues for hook-and-line catcher vessels ≥60' range from $60,000 to $170,000. For pot vessels ≥60', the range is from $7.06 million to $8.18 million. Should an option under Alternative 4 be selected, in which pot catcher processors and pot catcher vessels receive separate allocations, the projected ex-vessel revenues for pot catcher vessels ranges from $6.96 million to $8.19 million.

Summary

In sum, there are four primary alternatives considered in this analysis:

- **Alternative 1.** No Action
- **Alternative 2.** Status quo. Continue the current BSAI Pacific cod allocations among the fixed gear sectors.
- **Alternative 3.** Modified status quo. Modify the current BSAI Pacific cod allocations to include catch histories from 1999.
- **Alternative 4.** (Applicable only in combination with Alternatives 2 or 3.) Further split the pot gear allocation between pot catcher processors and pot catcher vessels.

The alternatives and options are expected to have no significant biological impacts. The intent of the proposed amendment is the same as the original, to provide each of the fixed gear sectors with a direct allocation approximating historical harvest levels. By stabilizing the harvests of the different gear sectors, the proposed action would also be expected to stabilize the fixed gear Pacific cod fishery's environmental impacts. Any increase or decrease in harvest of Pacific cod by hook-and-line and pot fisheries and any substantial shift in effort between these fisheries would likely have a corresponding impact on incidental catch of "other species," such as octopus, sharks, and skates. By preventing any significant change in the relative percentages of the Pacific cod fixed gear TAC taken by the different fixed gear sectors, the proposed amendment would likely have the ancillary impact of stabilizing incidental catches of the "other species" management group also at their historical levels and percentages according to gear sector. Bycatch of halibut is limited by hook-and-line prohibited species caps, so no additional bycatch would be expected, regardless of the alternative selected.

None of the alternatives change the harvest of BSAI Pacific cod by the fixed gear sectors as a whole (51 percent of the overall BSAI Pacific cod TAC). With the exception of the no action alternative, little variation is expected among the allocations resulting from the alternatives and options. Any slight shift in effort between the different sectors as a result of the alternatives would likely have little corresponding impact on incidental catch of other species, or of marine mammals such as Steller sea lions.

None of the alternatives are expected to result in a "significant regulatory action" as defined in E.O. 12866. None of the alternatives are likely to significantly affect the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by Section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

Preferred Alternative:

After reviewing the proposed alternatives, options, and suboptions for BSAI Amendment 77, the Council selected Alternative 2 (status quo), to continue the current BSAI Pacific cod allocations among the fixed gear sectors as originally determined under BSAI Amendment 64. The Council recommended to continue the allocations in response to the need to maintain stability in the various sectors of the BSAI fixed gear Pacific cod fishery for fishermen who have made substantial investments and are significantly dependent on this fishery. The Council also took action to split the portion of the fixed gear BSAI Pacific cod TAC allocated to vessels using pot gear between pot catcher processors and pot catcher vessels, based on 1998 - 2001 catch histories in the directed BSAI Pacific cod fishery (Alternative 4, Option 3).

In addition to establishing the allocations, the Council selected four options which address the reallocation of quota that is projected to remain unused in the Pacific cod fixed gear, trawl, and jig fisheries. The primary change from the status quo is to apportion the jig sector's allocation (2 percent of the BSAI Pacific cod TAC) on a trimester basis. Projected amounts of unharvested jig gear seasonal apportionments would be initially reallocated each jig season to catcher vessels less than 60 ft (18.3 m) using hook-and-line or pot gear. Only if it is determined that the small vessel fleet would not be able to harvest the additional amounts of Pacific cod would these jig gear rollover amounts be made available to the hook-and-line catcher/processor sector.

The comprehensive preferred alternative selected by the Council is provided below:

Overall fixed gear allocations (Alternative 2 - status quo):
The Council approved continuing the current (under BSAI Amendment 64) BSAI Pacific cod allocations among the fixed gear sectors as follows:

80% hook-and-line catcher processors
0.3% hook-and-line catcher vessels
18.3% pot vessels
1.4% to <60' pot/hook-and-line catcher vessels

Pot split (Alternative 4, Option 3):
The Council also apportioned the pot share (18.3%) of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories from 1998 - 2001:

3.3% pot catcher processors
15.0% pot catcher vessels

Rollover provisions:
Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet (Option 1).

Any quota reallocated from the trawl sector shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors (modified Option 2).

Apportion the 2% BSAI Pacific cod jig allocation on a trimester basis as follows:
40% (Jan. - April)
20% (May - August)
40% (Sept. - Dec.)
Any jig gear quota that is projected to remain unused will be reallocated on a seasonal basis to the catcher vessels <60' using hook-and-line or pot gear (modified Option 3).

Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused shall be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors (Suboption a).

Sunset provision:
No sunset provision (Option 1).

The status quo alternative includes the following methods for allocating BSAI Pacific cod: (1) bycatch of Pacific cod in other fixed gear fisheries will continue to be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set; and (2) harvests by pot and/or hook-and-line catcher vessels <60' LOA only accrue against the 1.4 percent allocation when the Pacific cod fishery for all catcher vessels using pot gear or hook-and-line gear, respectively, are closed, (i.e., when the pot and hook-and-line catcher vessel fleets cannot fish their 15.0 percent and 0.3 percent set-asides, respectively.) The intent is for this action to be implemented January 1, 2004, upon expiration of BSAI Amendment 64.

1.0 INTRODUCTION

The groundfish fisheries in the Exclusive Economic Zone (3 to 200 miles offshore) of the Bering Sea and Aleutian Islands off Alaska are managed under the Bering Sea/Aleutian Islands Groundfish Fishery Management Plan (BSAI FMP), as developed by the North Pacific Fishery Management Council (Council) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The FMP was approved by the Secretary of Commerce and became effective in 1982.

This document is an Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for proposed Amendment 77 to the BSAI FMP. The action proposes to apportion the fixed gear share of the BSAI Pacific cod TAC among the fixed gear sectors. For the purposes of this amendment, the fixed gear sectors are defined as follows: hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels.

An environmental assessment (EA) is required by the National Environmental Policy Act of 1969 (NEPA) to determine whether the action considered will result in a significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact (FONSI) would be the final environmental documents required by NEPA. An environmental impact statement (EIS) must be prepared for major Federal actions significantly affecting the human environment.

The purpose of the EA is to analyze the environmental impacts of the proposed Federal action to apportion the fixed gear share of the BSAI Pacific cod TAC among the fixed gear sectors according to the historical harvest distribution. The human environment is defined by the Council on Environmental Quality as the natural and physical environment and the relationships of people with that environment (40 CFR 1508.14). This means that economic or social effects are not intended by themselves to require preparation of an EA. However, when an EA is prepared and socio-economic and natural or physical environmental impacts are interrelated, the EA must discuss all of these impacts on the quality of the human environment. NEPA requires a description of the purpose and need for the proposed action as well as a description of alternatives which may address the problem. This information is included in **Section 1.0** of this document. **Section 2.0** contains a description of the affected human environment and information on the impacts of the alternatives on that environment, specifically addressing potential impacts on endangered species and marine mammals and cumulative effects.

Executive Order 12866 (E.O. 12866) requires preparation of a Regulatory Impact Review (RIR) to assess the social and economic costs and benefits of available regulatory alternatives, in order to determine whether a proposed regulatory action is economically "significant" as defined by the order. **Section 3.0** contains a systematic description and analysis of the economic and social impacts of each of the alternatives to allocate the BSAI Pacific cod TAC among the fixed gear sectors.

Section 4.0 addresses the requirements of other applicable laws, including the Magnuson Stevens Act (MSA), Marine Mammal Protection Act, and Regulatory Flexibility Act (RFA), which includes the Initial Regulatory Flexibility Analysis (IRFA) in Section 4.3. The RFA requires analysis of adverse impacts on small entities which would be directly regulated by the proposed action. The major goals of the RFA are to: (1) increase agency awareness and understanding of the impact of their regulations on small businesses, (2) require that agencies communicate and explain their findings to the public, and (3) encourage agencies to use flexibility and to provide regulatory relief to small entities. The preparation of an IRFA emphasizes predicting significant adverse impacts on small entities as a group, distinct from other entities, and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action.

The references and literature cited are in **Section 5.0**, the list of preparers is in **Section 6.0**, and the list of agencies and individuals consulted is in **Section 7.0**.

1.1 Purpose and Need for the Action

1.1.1 Background

Beginning in 1997, Amendment 46 allocated the total allowable catch (TAC) for BSAI Pacific cod among jig gear (2 percent), trawl gear (47 percent), and fixed gear (51 percent). The trawl apportionment was split between catcher vessels and catcher processors 50/50, but no split was adopted among the longline and pot vessels in the fixed gear cod fishery.

Vessels began fishing in Federal waters off Alaska under the License Limitation Program (LLP) on January 1, 2000. Since the LLP was approved by the Council, changes in the fixed gear fisheries prompted industry to petition the Council to further allocate cod in the BSAI among the various sectors of the fixed gear fleets. Amendment 64 was initially reviewed by the Council in April 1999 and adopted at the October 1999 meeting. The fixed gear Pacific cod apportionments under Amendment 64 are currently as follows:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 18.3% pot vessels
- 1.4% hook-and-line and pot catcher vessels <60' in length

These percentages fairly closely represent harvests in this fishery over the period 1995-1998, with an additional allocation for catcher vessels <60' LOA. Amendment 64 was approved by the Secretary in July 2000, and was implemented by final rule on August 24, 2000 (65 FR 51553). The BSAI Pacific cod fixed gear allocations and revised final 2000 harvest specifications under Amendment 64 became effective on September 1, 2000. This amendment will sunset on December 31, 2003, necessitating approval of a new plan amendment to either continue or modify the Pacific cod apportionments among the fixed gear sectors. This EA/RIR/IRFA represents a new plan amendment (BSAI FMP Amendment 77) to address this issue.

At the time the Council originally approved Amendment 64, it acknowledged that a further split among the pot sector might be necessary to stabilize the harvests of pot catcher processors and pot catcher vessels in the BSAI Pacific cod fishery. Concern was expressed that the pot sector needed the stability of direct fleet allocations, much as was done for the hook-and-line catcher processors and catcher vessels under Amendment 64. However, because the public had not been given notice that this action might be taken under Amendment 64, the Council decided to delay action specific to the pot sector and instead include the proposal in a follow-up amendment (BSAI Amendment 68).

Thus, subsequent to the decision on Amendment 64, the Council initiated a proposed amendment to apportion the pot gear share of the BSAI Pacific cod TAC between pot catcher processors and pot catcher vessels. Amendment 68 would have further split the current 18.3 percent of the fixed gear Pacific cod TAC allocated to pot gear according to recent catch histories from 1995 to 1999. The Council reviewed the analysis for Amendment 68 in June 2002 and decided to take no action on the amendment at that time, partly due to the potential implications of the Pacific cod endorsement required under BSAI Amendment 67, which was effective January 1, 2003. The Council also noted the pending expiration of BSAI Amendment 64 and decided to defer action and consider the allocations to all fixed gears sectors

within the new amendment package. Thus, the current analysis for Amendment 77 includes alternatives to split the fixed gear share of the BSAI Pacific cod TAC among hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels.

Further changes to the BSAI cod fishery occurred in April 2000 when the Council approved BSAI FMP Amendment 67. Amendment 67 requires that fixed gear vessels participating in the BSAI Pacific cod fishery must qualify for a Pacific cod endorsement, which would be part of the participant's License Limitation Program (LLP) license. Eligibility for a cod endorsement is based on past participation in the BSAI fixed gear fisheries during specific combinations of the years 1995-1999. Four different endorsements are available, depending on the gear used to harvest cod (hook-and-line or pot) and whether the cod was processed onboard the harvesting vessel (catcher vessel or catcher processor). Amendment 67 exempts catcher vessels less than 60 feet LOA from the requirement to have a cod endorsement to participate in the BSAI fixed gear cod fisheries. Amendment 67 effectively granted exclusive access to longtime participants in the BSAI fixed gear cod fishery, and thus reduced the number of allowable participants. This amendment was approved by the Secretary on November 14, 2001 and became effective January 1, 2003.

BSAI Amendment 77, with the exception of the alternative to split the pot share of the BSAI Pacific cod TAC, does not include any other fundamentally different alternatives than were considered under the original Amendment 64. While the availability of more recent data has spurred the inclusion of new options for determining the split among the fixed gear sectors, the basic alternatives remain the same. This proposal will not affect the jig or trawl apportionment of BSAI Pacific cod, nor does it affect the size of the overall BSAI Pacific cod TAC.

1.1.2 Problem Statement

Amendment 77 proposes implementing separate allocations to hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels. In essence, this action would further split the 51% of the BSAI Pacific cod TAC allocated to fixed gear vessels among the above sectors based on recent catch histories. This amendment would continue or amend the allocations approved by the Council in October 1999 and implemented mid-2000. This amendment is necessary to continue the fixed gear allocations, as the original amendment implementing those allocations is scheduled to expire on December 31, 2003.

Similar to the original action, Amendment 77 is intended to respond to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. While participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories, absent a gear split there is no mechanism that would prevent one sector from increasing its effort in the fishery and eroding another sector's relative historical share. Because Amendment 77 includes an alternative that would also split the pot share of the TAC among pot catcher processors and pot catcher vessels, each issue is addressed in a separate problem statement, guiding analysis of the proposed action.

The first problem statement was developed in response to the expiration of the fixed gear allocations under Amendment 64. Amendment 77, which proposes to continue Pacific cod allocations among the fixed gear sectors, speaks to protecting the relative historical catch distribution among the fixed gear sectors by apportioning the TAC accordingly; it does not propose alternatives to limit the number of individual vessels entering the fishery. (Limiting individual vessel participation in the fixed gear cod fishery is not addressed in this amendment package. That issue is addressed under BSAI Amendment 67

which requires a BSAI Pacific cod endorsement.) Thus, the first problem statement is applicable to Alternatives 1 through 3, which address the overall fixed gear allocations. The second problem statement was developed in response to the concern that the pot catcher processor sector's historical harvest share is being eroded by the pot catcher vessel sector. Thus, the second problem statement is applicable to Alternative 4, which proposes to split the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to recent catch histories. The two Council problem statements for Amendment 77, approved in December 2002, are included below.

Problem Statements for proposed Amendment 77 to the BSAI FMP

Problem Statement 1: Overall fixed gear allocations (Applicable to Alternatives 1 -3, formerly addressed under Amendment 64)

The fixed gear fisheries for Pacific cod in the BSAI are fully utilized. The fishermen who hold licenses in the BSAI Pacific cod fisheries have made substantial investments and are significantly dependent on BSAI Pacific cod.

The longline and pot gear allocations currently in place for the BSAI Pacific cod fishery under Amendment 64 expire December 31, 2003. Without action by the North Pacific Fishery Management Council, serious disruption to the BSAI Pacific cod fixed gear fisheries will occur. Prompt action is required to maintain stability in the BSAI fixed gear Pacific cod fishery until comprehensive rationalization is completed.

Problem Statement 2: Separate allocations for pot catcher processors and pot catcher vessels: (Applicable to Alternative 4, formerly addressed under Amendment 68)

The catcher processor and catcher vessel pot fisheries for Pacific cod in the Bering Sea/Aleutian Islands are fully utilized. Pot catcher processors who have made significant long-term investments, have long catch histories, and are significantly dependent on the BSAI cod fisheries need protection from pot catcher vessels who want to increase their Pacific cod harvest. This requires prompt action to promote stability in the BSAI pot cod fishery until comprehensive rationalization is completed.

The first problem statement reflects an identified need to provide for separate, direct allocations of BSAI Pacific cod to each fixed gear sector, to ensure the catch distribution that has historically occurred among the sectors. Increased prices for Pacific cod, reduced crab guideline harvest levels, and shortened or canceled crab seasons due to low resource abundance have resulted in increased harvests of Pacific cod by vessels using pot gear. Fishermen that are displaced from the crab fisheries have expressed ongoing interest in fishing for Pacific cod, spurring concerns by long-term Pacific cod fishermen about erosion of their gear harvest shares in the cod fishery in favor of vessels using pot gear that have very limited or no historical participation in the fishery. Both longline and pot cod fishermen have expressed concern with the pending expiration of the fixed gear allocations under Amendment 64, and the potential for serious disruption to the fishery if no gear allocations are in place for the 2004 cod season.

Without direct Pacific cod allocations, the concern is that increased competition for the cod resource may cause one sector to encroach on another sector's historical harvest level. At the same time, there is a concern that absent a pot split, the pot catcher vessel harvest may encroach on the pot catcher processors' historic harvest level. This concern is identified in Problem Statement 2. The overall effort to constrain and protect the harvest distribution among the fixed gear sectors is intended as a step toward comprehensive rationalization.

1.2 Alternatives Considered

1.2.1 Alternative 1: No action

Under Alternative 1, the BSAI Pacific cod allocations for the fixed gear sectors (hook-and-line catcher processors, hook-and-line catcher vessels, pot vessels, and hook-and-line and pot vessels <60') under Amendment 64 would expire on December 31, 2003. The result would be that, starting in 2004, each vessel operator among the fixed gear sectors would compete in a wide open, inefficient race-for-fish, seeking the largest possible individual share of the BSAI Pacific cod TAC (51%) allocated to vessels using hook-and-line and pot gear.

1.2.2 Alternative 2: Status quo

Under Alternative 2, the current BSAI Pacific cod allocations among the fixed gear sectors (as originally determined under Amendment 64) would continue:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels <60'
- 18.3% pot vessels

These allocations relate closely to catch histories during 1995-1998, with an additional provision for vessels <60' LOA, excluding any quota reallocated from other (trawl and jig) sectors. These allocations do not match the relative historical catch distributions exactly, primarily because of the 1.4 percent allocated to vessels <60'. That allocation was 'funded' by a reduction in the hook-and-line catcher processor allocation, and increased the allocation to vessels <60' almost five-fold compared to their average harvest during the specified time period. Under this alternative, harvests by pot and/or hook-and-line catcher vessels <60' would only accrue against the1.4 percent allocation when the general pot or longline catcher vessel fisheries (with allocations of 18.3 percent and 0.3 percent, respectively) are closed.

The following three options and several suboptions are also under consideration under Alternative 2. These options are provided to address BSAI Pacific cod quota reallocated to and within the fixed gear sectors.

Rollover Options

Option 1: (Status quo) Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: (Status quo) Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption: (a) 25% - 25% - 25% - 25%

(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

Options 1 and 2 for determining rollovers were part of the original Amendment 64, and thus selection of both of those options would mirror the reallocation scheme in place for the BSAI Pacific cod fisheries from mid- 2000 to 2003. The 95% - 5% split between the hook-and-line catcher processor and pot sectors as described above in Option 2 was based on the actual harvest of reallocated quota from 1996 - 1998. Option 3 was not part of the original Amendment 64 and was added to the alternatives under consideration by the Council in response to testimony by the public describing the need to increase the harvest share available to the less than 60' fixed gear fleet.

Option 3 proposes to apportion the jig sector's allocation on a quarterly or trimester basis, such that quota that is projected to remain unused shall be reallocated to <60' vessels using hook-and-line or pot gear at the end of each season. The 2% jig allocation has not been fully utilized by the jig sector since it was implemented, and under Amendment 64, the majority (95%) of the unused jig quota has been reallocated to the hook-and-line catcher processor sector. Option 3, while preserving the overall jig allocation of 2% of the BSAI Pacific cod TAC, proposes to redistribute any reallocated quota on a seasonal basis to the <60' fixed gear fleet.

Finally, Alternative 2 provides two options regarding a sunset date associated with the action taken under this amendment package:

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

1.2.3 Alternative 3: Modified status quo

Alternative 3 would modify the current BSAI Pacific cod allocations among the fixed gear sectors according to catch histories to be determined as a percentage of cumulative catches of BSAI Pacific cod by gear type for 1995 - 1999. This alternative differs from Alternative 2 in that it includes 1999 data to determine the split among the fixed gear sectors. Recall that under Alternative 2, the split was based closely, but not exactly, on catch histories from 1995 - 1998. At the time the analysis for Amendment 64 was developed, 1999 data were considered preliminary. Thus, including 1999 allows use of the most recent harvest data available prior to the allocation decision under Amendment 64. As the allocations under Amendment 64 were implemented in mid-2000, using catch history from 2000 or 2001 would be similar to maintaining the existing allocations.

Also included under Alternative 3 is an option to continue the 1.4 percent allocation to catcher vessels <60', despite this sector's actual catch history during the time period 1995-1999:

Option 1: Include a 1.4% allocation to pot and hook-and-line catcher vessels <60', to be subtracted from the overall fixed gear allocation before the split is made.

The same options and suboptions for addressing how to reallocate unused quota among the fixed gear sectors under Alternative 2 is included under Alternative 3:

Rollover Options

Option 1: (Status quo) Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: (Status quo) Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
- (a) 25% - 25% - 25% - 25%
- (b) 50% - 30% - 15% - 5%
- (c) 33.3% - 33.3% - 33.3%
- (d) 60% - 25% - 15%
- (e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
- (f) 40% - 20% - 40%

Options 1 and 2 for determining rollovers were part of the original Amendment 64, and thus selection of both of those options would mirror the reallocation scheme in place for the BSAI Pacific cod fisheries from mid- 2000 to 2003. Recall that the 95% - 5% split between the hook-and-line catcher processor and pot sectors (Option 2) was based on the actual harvest of reallocated quota from 1996 - 1998; however, this split is unaffected by the inclusion of 1999 data.

Option 3 was not part of the original Amendment 64 and was added to the alternatives under consideration by the Council in response to testimony by the public describing the need to increase the harvest share available to the less than 60' fixed gear fleet. Option 3 proposes to apportion the jig sector's allocation on a quarterly or trimester basis, such that quota that is projected to remain unused shall be reallocated to <60' vessels using hook-and-line or pot gear at the end of each season. The 2% jig allocation has not been fully utilized by the jig sector since it was implemented, and under Amendment 64, the majority (95%) of the unused jig quota has been reallocated to the hook-and-line catcher processor sector. Option 3, while preserving the overall jig allocation of 2% of the BSAI Pacific cod TAC, proposes to redistribute any reallocated quota on a seasonal basis to the <60' fixed gear fleet.

Finally, Alternative 3 also provides two options for sunsetting the action taken under this amendment package:

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

1.2.4 Alternative 4: Pot split (applicable only in combination with Alternative 2 or 3)

Alternative 4 would apportion the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories to be determined as a percentage of cumulative catches of the BSAI Pacific cod TAC by pot sector for:

Option 1:	1995 - 1999
Option 2:	1996 - 2001
Option 3:	1998 - 2001
Option 4:	2000, 2001

As this alternative only addresses a split within the pot share of the BSAI Pacific cod TAC, it may only be selected in conjunction with an alternative which makes separate allocations among longline and pot vessels (Alternative 2 or 3). That is, one must select Alternative 2 or Alternative 3 to create a distinct pot share of the BSAI Pacific cod TAC in order to split the pot share as proposed under Alternative 4. Any options selected under Alternative 2 or 3 with regard to reallocated quota or a sunset provision would continue to apply if Alternative 4 was selected as part of the preferred alternative.

Options 1 - 4 use combinations of catch histories from 1995 - 2001, excluding catch that was reallocated from other gear sectors. Should a separate allocation for hook-and-line and pot vessels <60' be part of the preferred alternative, Alternative 4 would not affect that allocation. This alternative proposes only to split the general pot vessel allocation between pot catcher processors and pot catcher vessels.

Alternative 4 also includes two suboptions to provide direction on how reallocated quota should be apportioned should either of the pot sectors in the BSAI Pacific cod fishery be unable to harvest its entire allocation in a given year:

Suboption: Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused by a specified date shall be reallocated as follows:

a) Unused quota from either pot sector would be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors.

b) Unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessel sector before it is reallocated to the pot catcher processor sector.

Without explicit direction on either suboption, it is assumed that NMFS will address the rollovers as is currently done for the hook-and-line cod fisheries, which is similar to Suboption a. Currently, any amount of BSAI Pacific cod annually allocated to the hook-and-line catcher vessel sector or vessels <60' that is projected to remain unharvested is reallocated to the hook-and-line catcher processor fleet in September.

Recall also that under Alternative 2 or 3, Option 2 would allow the pot sector to receive 5% of the total quota reallocated from the jig and trawl sectors in a given year. This analysis presents information showing the amount of reallocated quota utilized by the pot catcher processor and pot catcher vessel sectors but does not propose alternatives to further split the 5% of reallocated quota between the two

sectors. The pot sector historically harvests a relatively small portion of quota reallocated from the trawl and jig sectors, primarily because of the timing of the reallocation.

1.3 Proposed changes to the BSAI FMP

The proposed action is a BSAI FMP amendment (Amendment 77) that would potentially require changing the following language in Section 13.4.9.2.3, which relates to Pacific cod allocations among vessels using hook-and-line or pot gear:

> *13.4.9.2.3 (Applicable through December 31, 2003) Gear allocation among vessels using hook-and-line or pot gear. The Regional Administrator, NMFS, Alaska Region, annually will estimate the amount of Pacific cod taken as incidental catch in directed fisheries for groundfish other than Pacific cod by vessels using hook-and-line or pot gear and deduct that amount from the portion of Pacific cod TAC annually allocated to hook-and-line or pot gear under Section 13.4.9.2.1. The remainder will be further allocated as directed fishing allowances as follows:*
>
> *a) 80 percent to catcher/processor vessels using hook-and-line gear;*
> *b) 0.3 percent to catcher vessels using hook-and-line gear;*
> *c) 18.3 percent to vessels using pot gear; and*
> *d) 1.4 percent to catcher vessels less than 60 feet length overall that use either hook-and-line or pot gear.*
>
> *Specific provisions for the accounting of these directed fishing allowances and the transfer of unharvested amounts of these allowances to other vessels using hook-and-line or pot gear will be set forth in regulations.*

Under Alternative 2, the current allocations would not change, thus the FMP language would only be amended to delete or modify the reference to the sunset date of December 31, 2003. Under Alternative 3, the allocation percentages listed in Section 13.4.9.2.3 would be modified accordingly. Under Alternative 4, in combination with Alternative 2 or 3, language would be added to the FMP that would authorize splitting the pot share of the BSAI Pacific cod TAC accordingly. This amendment would also require modifying Federal regulations to allow for the selected allocation percentages as well as specific provisions for the accounting of these directed fishing allowances and the transfer of unharvested amounts of these allowances to other vessels using hook-and-line or pot gear.

In addition, should this action modify the seasonal apportionments for the BSAI Pacific cod jig fishery under Alternative 2 or 3, Option 3, that action would require a regulatory change. The FMP would not be modified. Establishing seasonal apportionments for the jig fishery is authorized under Section 13.4.9.2.2 of the BSAI FMP:

> *13.4.9.2.1 Gear allocations. The Bering Sea and Aleutian Islands area Pacific cod TAC shall be allocated among gear groups as follows: 2 percent to vessels using jig gear; 51 percent to vessels using hook-and-line or pot gear; and 47 percent to vessels using trawl gear. The trawl apportionment will be divided 50% to catcher vessels and 50% to catcher processors.*
>
> *13.4.9.2.2 Seasonal apportionments. The amount of Pacific cod allocated to gear groups under section 13.4.9.2.1 may be seasonally apportioned. Criteria for seasonal*

apportionments and the seasons authorized to receive separate apportionments will be set forth in regulations.

The action considered in this amendment package is limited to amending the BSAI FMP and would not affect the FMP for the Gulf of Alaska. The nature and intent of the action is to apportion the fixed gear share of the BSAI Pacific cod TAC among the following sectors: hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels.

1.4 Consistency with the Problem Statement

The alternatives under consideration are consistent with the problem statements. Under the no action alternative, the current fixed gear apportionments of the BSAI Pacific cod TAC will expire on December 31, 2003. The problem identified is that pot and longline fishermen who have made significant long-term investments, have extensive catch histories, and are significantly dependent on the BSAI cod fisheries need the continued stability the fixed gear allocations currently provide under Amendment 64. Absent the direct gear allocations, each fixed gear sector is vulnerable to the other fixed gear sectors who want to increase their Pacific cod harvest. This concern is identified in Problem Statement 1. Similarly, pot catcher processors who have made significant long-term investments seek protection from pot catcher vessels who want to increase their Pacific cod harvest. This concern is identified in Problem Statement 2.

The problems statements identify a need for stability in the BSAI fixed gear cod fishery until comprehensive rationalization is completed. The proposed alternatives would continue or modify the fixed gear allocations, and potentially also further split the pot gear apportionment between pot catcher processors and pot catcher vessels, according to recent catch histories. The intent of the action is to establish direct allocations for each gear sector in the fixed gear BSAI Pacific cod fishery, in order to protect the relative historical catch distribution among those sectors. Amending the FMP and 50 CFR 679.20 (a)(7)(i)(C) is required to allow the proposed change under Alternative 2, 3, or 4. Changes to the provisions addressing unused quota and seasonal apportionments of the jig quota will require changes to 50 CFR 679.20 (a)(7)(ii) and (iii), respectively. Therefore, with proper justification, the Council may make the recommended change with approval of the Secretary of Commerce.

2.0 AFFECTED HUMAN ENVIRONMENT AND ENVIRONMENTAL IMPACTS

The purpose of this EA is to analyze the environmental impacts of the proposed Federal action to establish separate TACs for the hook-and-line catcher processor, hook-and-line catcher vessel, pot catcher processor, and pot catcher vessel sectors in the BSAI Pacific cod fishery and provide sufficient evidence to determine the level of significance. The human environment is defined by the Council on Environmental Quality as the natural and physical environment and the relationships of people with that environment (40 CFR 1508.14). This means that economic or social effects are not intended by themselves to require preparation of an EA. However, when an EA is prepared and socio-economic and natural or physical environmental impacts are interrelated, the EA must discuss all of these impacts on the quality of the human environment.

The purpose and need for the action, as well as the problem statement and the list of alternatives and options for analysis, are included in Chapter 1.0. This chapter includes a description of the natural and physical environment (Section 2.1), the environmental impacts of the alternatives (Section 2.2), the context and intensity of the action as required by NEPA (Section 2.3), cumulative effects (Section 2.4), and conclusions (Section 2.5).

2.1 Natural and Physical Environment

2.1.1 Status of Pacific Cod Stocks and Other Fixed Gear Target Stocks

Biological and economic impacts of the proposed action depend to some extent on current and future abundance of groundfish and crab stocks that are also targeted by these sectors. A status report on Pacific cod and major crab stocks targeted by fixed gear is provided below. This information is summarized from the Stock Assessment and Fishery Evaluation Reports (NMFS 2002a and 2002c). The SAFE or Draft PSEIS (NMFS 2001a) can be consulted for detailed information on the biological status of groundfish stocks in the BSAI. Where applicable, species specific management measures (such as gear allocations) are highlighted.

Biomass (mt, from survey data) and pre-season catch specifications (mt), for BSAI Pacific cod, 1980-2003.

Year	EBS Biomass	BSAI ABC	BSAI TAC
1980	905,000	148,000	70,700
1981	1,035,000	160,000	78,700
1982	1,021,000	168,000	78,700
1983	1,176,000	298,200	120,000
1984	1,001,000	291,300	210,000
1985	961,000	347,400	220,000
1986	1,134,000	249,300	229,000
1987	1,142,000	400,000	280,000
1988	959,000	385,300	200,000
1989	960,000	370,600	230,681
1990	709,000	417,000	227,000
1991	532,000	229,000	229,000
1992	547,000	182,000	182,000
1993	690,000	164,500	164,500
1994	1,368,000	191,000	191,000
1995	1,003,000	328,000	250,000
1996	891,000	305,000	270,000
1997	605,000	306,000	270,000
1998	534,000	210,000	210,000
1999	583,000	177,000	177,000
2000	528,466	193,000	193,000
2001	830,479	188,000	188,000
2002	617,000	223,000	200,000
2003	*	223,000	207,500

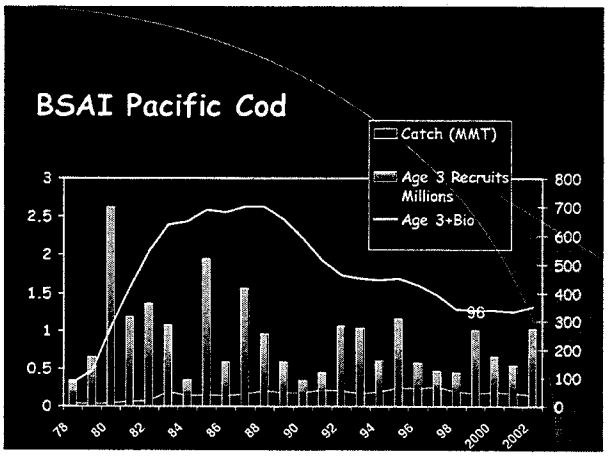
From 2002 SAFE, NMFS.

Pacific cod *(Pacific cod information is from the 2002 BSAI Groundfish SAFE)*

Pacific cod (*Gadus macrocephalus*), also known as grey cod, are moderately fast growing and short-lived fish. Females reach 50% maturity at 67 cm (about 5.8 years old) and are highly fecund. A 67 cm cod will produce well over 1 million eggs. Spawning occurs January through April in the Bering Sea. Annual natural mortality of adults has been estimated to be about 30% (M = 0.37). Cod

prey on clams, worms, crabs, shrimp, and juvenile fish. In turn, they are eaten by halibut and marine mammals. Cod are demersal and concentrate on the shelf edge and upper slope (100-250 m) in the winter, and move to shallower waters (generally <100 m) in the summer. Cod begin to recruit to trawl fisheries at age 3, but are not fully recruited to all gear types until about age 7. Maximum age has been estimated at 18 years based on otolith samples.

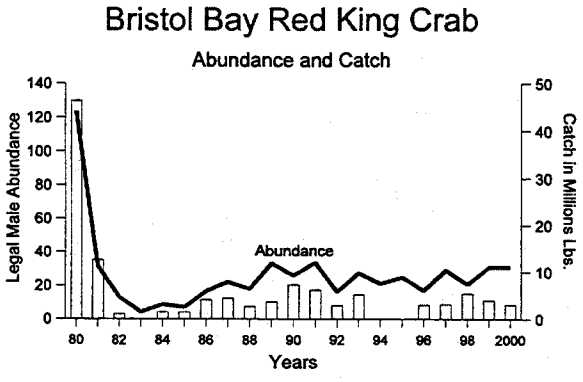
Model projections indicate that this stock is neither overfished nor approaching an overfished condition. The cod stock is considered relatively stable. The BSAI Pacific cod stock increased to high levels in the mid 1990s, then declined. The 2002 Eastern Bering Sea bottom trawl survey resulted in a biomass estimate of 617,000 mt, down 26% from the 2001 estimate and near the minimum for the survey (534,000 mt). The Aleutian Islands were last surveyed in 2002; the biomass decreased 39% from 2000 and is the lowest value of the time series. Estimates of abundance are higher for the 2003 assessment compared to the 2002 assessment. For example, estimated 2003 spawning biomass for the BSAI stock is 423,000 tons, up about 4% from last year's F_{ABC} projection for 2003.



The 2002 age 3+ biomass was projected to be 1,680,000 mt. An $F_{40\%}$ harvest strategy, adjusted downward 20% by a risk-averse optimization procedure, resulted in an ABC for 2003 of 223,000 mt, which is equal to the 2002 ABC. The TAC was established at 207,500 mt, about 4 percent higher than the 2002 TAC. Spawning biomass is expected to decline, as it has declined continuously since 1988. Another biological concern is that three of the last five year-classes (assessed at age 3) are "below average" and an "above average" year-class has not occurred since 1992. Details of the Pacific cod stock assessment are available in the current SAFE document (NMFS 2002a).

Bristol Bay Red King Crab *(Crab stock information is from the 2002 Crab SAFE)*

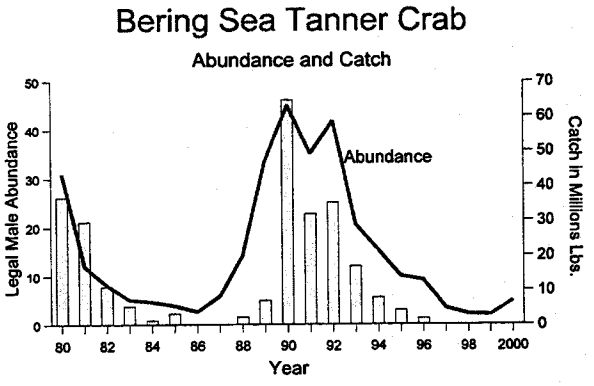
After declining abundance throughout the 1960s and reaching a low during the years 1970-1972, recruitment to the Bristol Bay red king crab stock increased dramatically. New all-time record landings were established in each year from 1977 to 1980. Declining recruitment, fishing pressure, and probably increased incidence of disease and predation led to an abrupt decline in the fishery in 1981 and 1982. These precipitous declines led to a closure of the Bristol Bay fishery in 1983. In 1984, the stock showed some recovery and a limited fishery was reestablished. Between 1984 and 1993, the fishery continued at levels considerably below those of the late 1970s. Throughout the 1980s and 1990s there was little sign of a large year-class in this stock. Because the abundance of female crab was below threshold, the Bristol Bay red king crab fishery was closed in 1994 and 1995. The fishery



reopened in 1996, and catches increased to 16.4 million pounds in 1998, decreased to 11.1 million pounds in 1999, 8.4 million pounds in 2000, and 7.6 million pounds in 2001. The 2002 fishery opened October 15 and closed on October 18, with the general open access GHL of 8.58 million pounds. The estimated spawning biomass for 2002 is 129.9 million pounds, an increase of nearly 50% over the 2001 estimate of 88 million pounds. Rather than representing a true increase in spawning biomass, much of that apparent increase from the 2001 estimate may be attributable to overestimation of mature male abundance and biomass from the 2001 survey data (NMFS 2002c). The stock assessment notes that although some decline in mature abundance in 2003 would not be surprising, stock levels in 2002 are such that reductions to levels below minimum stock size threshold or the stock thresholds for a fishery opening are not anticipated for 2003.

Tanner Crab

The Bering Sea Tanner (*C. Bairdi*) stock has undergone two large fluctuations. Catches increased from 5 million pounds in 1965 to over 36 million pounds in 1980. The 1980 peak catch was followed by a collapse resulting in low landings (<0.5 million lbs) from 1981-1985, and no fishery in 1986 and 1987. The fishery reopened in 1988, and landings increased to over 60 million pounds in 1990. A decline followed, and the fishery has been closed since 1997. ADF&G will reopen the fishery when the female biomass is above the threshold (21 million lbs of female biomass) and the fishery GHL is above the minimum identified in the rebuilding harvest strategy.



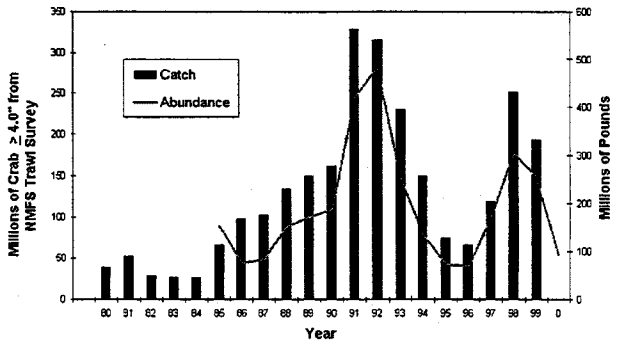
Abundance of this stock fell below the minimum stock size threshold (94.8 million pounds spawning biomass) established in the fishery management plan for this in 1998, thus the stock was declared overfished in 1998. The 1998 estimates of legal males and large females were the lowest in the history of the NMFS bottom trawl survey. The survey biomass estimate declined to 36.9 million lbs in 1998 and increased to 70.1 million lbs in 1999, 59.1 million lbs in 2000, 67.7 million lbs in 2001, and 69.4 million lbs in 2002. The Council adopted a rebuilding plan for this stock in October 1999. The plan bases the GHL on a harvest rate of 20% of molting mature males when the biomass of females >79mm CW is ≥ 45 million lbs and a harvest rate of 10% of molting mature males when the biomass of females >79mm CW is less than 45 million lbs and at least 21 million lbs. Given the 2002 survey data, this stock is not anticipated to be above the "rebuilt" level (MSY biomass, defined in the FMP as 189.6 million pounds of total mature biomass) in 2003.

Snow Crab

Catch of Bering Sea snow crab *(C. opilio)* increased from under 1 million pounds in 1974 to over 315 million pounds in 1992. The 1992 peak catch was followed by reduced landings through 1996. The stock quickly rebounded with good recruitment, however, and landings increased to 250 million pounds in 1998. Since 2000, however, the GHLs have been substantially reduced. The 2002 open access fishery opened January 15 with a GHL of 28.5 million pounds and was closed on February 8 with an estimated harvest of 30.26 million pounds. The CDQ fishery allocation is 7.5% of the total harvest of snow crab, or about 2.45 million pounds in 2002. The majority of the harvest and landings occurred in the Eastern

subdistrict, with the remainder occurring in the Western subdistrict.

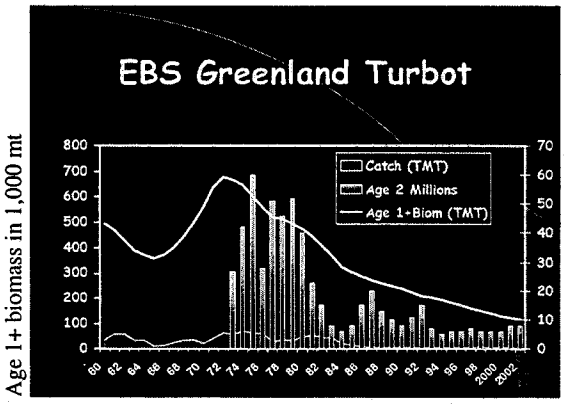
Bering Sea Snow Crab Abundance and Catch



The 2002 spawning biomass survey estimate was 313 million pounds, a decrease from the 2001 estimate of 571 million pounds and the fourth lowest on record. In 1999, NMFS identified the stock as overfished because the stock was well below the minimum stock size threshold (460.8 million pounds). The threshold level for opening the fishery is 230.4 million pounds of spawning biomass, or one-half of minimum stock size threshold. The stock will be considered "rebuilt" when the spawning biomass is above the MSY biomass of 921.6 million pounds. The size-frequency data for 2001 suggested that spawning biomass should continue to increase in 2002, however, the estimated spawning biomass in 2002 represents the continuation of an overall decreasing trend since 1991. Given the history of trends in spawning biomass for this stock, however, it is difficult to predict when the fishery will reach the "rebuilt" level. The Council adopted a rebuilding plan in June 2000, and it was approved by NMFS in January 2001. The GHL for the 2003 season is set at 25.6 million pounds, very close to the 2001 GHL of 25.3 million pounds and below the 2002 GHL of 28.5 million pounds.

Because of the low stock abundance and substantially reduced GHLs for 2000-2002, the recent seasons for the Bering Sea snow crab fishery season have been extremely short. Season length is influenced by the GHL, number of participating vessels, weather, and distribution of the species. Advancing sea ice and a higher probability of gear conflict, gear loss, and increased handling mortality prompted the Alaska Department of Fish & Game to delay the 2000 season until April 1, citing safety and resource considerations (ADF&G 2000b). In 2001, while the open access fishery opened on January 15, lengthy price negotiations resulted in most catcher vessels not fishing until February 3. The fishery closed on February 14, with 207 vessels participating. In 2002, the open access fishery lasted almost a month and closed on February 8. The 2003 season opened on January 15 and closed on January 25, with an open access fishery GHL of 23.6 million pounds. Delays, short seasons, and reduced GHLs exacerbate concerns in the pot gear BSAI Pacific cod fishery, as increased pressure results due to the availability of pot fishermen and decreased revenues from crab.

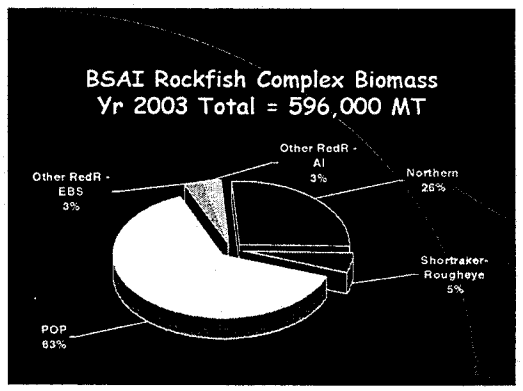
BSAI Greenland Turbot



Unlike biomass of other flatfish species in the BSAI, biomass of Greenland turbot is at low levels and declining. Biomass has declined due to poor year classes since the 1980s. Catch has also declined from a peak of 57,000 mt in 1981 to only about 5,200 mt in 2001. The overall decline is due mainly to catch restrictions placed on the fishery because of declining recruitment. For the period 1992-97, the Council set the TACs to 7,000 mt as an added conservation measure due to recruitment concerns; this has resulted in primarily bycatch-only fisheries. Biomass is projected to continue declining due to poor recruitment.

Greenland turbot were harvested almost exclusively (>90%) by trawl gear until the early 1990s when longlines became the dominant gear type for this species. No halibut bycatch has been apportioned for a directed trawl fishery since 1996, effectively prohibiting this gear type from targeting turbot. The 2003 ABC and TAC are set at 5,880 mt and 4,000 mt, respectively, with a 2003 OFL of 17,800 mt.

BSAI Rockfish



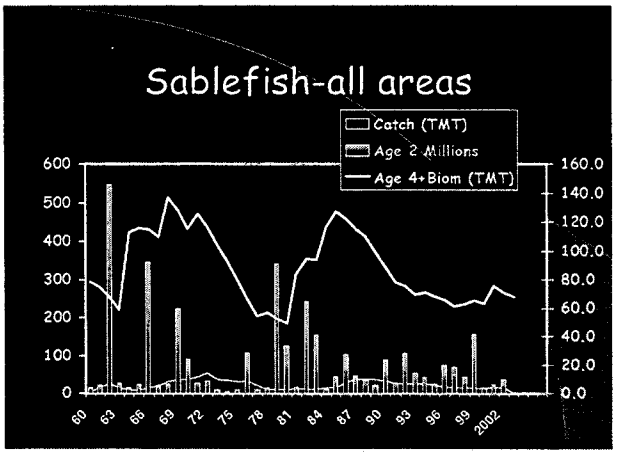
Rockfish are divided into the following categories in the eastern Bering Sea and Aleutian Islands: 1) Pacific ocean perch; 2) northern rockfish; 3) shortraker and rougheye rockfishes; and other rockfishes. Separate TACs were established for the EBS and AI management areas, but the ABCs and OFL apply to the entire BSAI area, except for other rockfish where these apply by are area. These species categories were established to protect Pacific ocean perch, shortraker rockfish, and rougheye rockfish (the three most valuable commercial species in the assemblage) from possible overfishing.

Pacific Ocean Perch has historically been the most abundant rockfish in this region, but it is caught primarily by trawl catcher processors. Much of the catch of northern rockfish in the Aleutian Islands is bycatch in the Atka mackerel fishery, also targeted by trawl catcher processors. The shortraker/rougheye rockfish complex has been allocated 70 percent to the trawl sector and 30 percent to the nontrawl sector since 1998 (BSAI Amendment 53). Within the nontrawl fishery, virtually all of the allocation is harvested with longline gear.

Prior to 2001, the rougheye/shortraker group in the Aleutian Islands was composed primarily of rougheye rockfish, whose proportion of the group has varied from 49% to 92% in recent years. Northern rockfish and shortraker rockfish have been the largest components of the eastern Bering Sea other red rockfish harvest from 1995 to 2000, as these two species ranged from 79% to 96% of the other red rockfish. Although the estimated catches of these two species are similar, northern rockfish have lower ABC levels because its population size is estimated to be considerably smaller (NMFS 2002a).

Since 2000, the Council has debated separating shortraker and rougheye rockfish species and setting BSAI area-wide ABCs and TACs for them. NMFS was unable to implement those recommendations because of the difficulty in identifying shortraker and rougheye rockfishes to species. It established separate BS and AI TACs for northern rockfishes and separate BS and AI TACS for the combined shortraker/rougheye rockfishes category. The Council initiated a plan amendment in 2003 to revise management of BSAI and GOA rockfish species and will adopt criteria for aggregating or disaggregating species and for managing target and non-target fisheries for them.

Sablefish



The sablefish resource of the Bering Sea, Aleutian Islands, and Gulf of Alaska are considered one stock. However, the resource is managed by discrete regions to distribute exploitation throughout its range. Large catches of sablefish (up to 26,000 mt) were made in the Bering Sea during the 1960s, but have since declined. Smaller catches have been made in the Aleutian Islands area, peaking at 3,800 mt in 1987. The Council accepts the SSC contention that, due to recent increases in survey and fishery CPUE, the status of sablefish population has changed from small and increasing to moderate and increasing (SSC minutes, 12/02). The survey abundance index increased 5% in number and 7% in weight from 2001 to 2002, so that relative abundance in 2002 is about 10% higher than in 1999. Exploitable and spawning biomass are projected to increase 6% and 3% respectively, from 2002 to 2003, due mainly to a strong 1997 (and possibly 1998) year-class. The 2003 ABC is 20,890 mt for the combined stock, nearly 21% higher than the 2002 ABC. The ABCs and TACs for the Bering Sea and the Aleutian Islands are 2,900 mt and 3,100 mt, respectively.

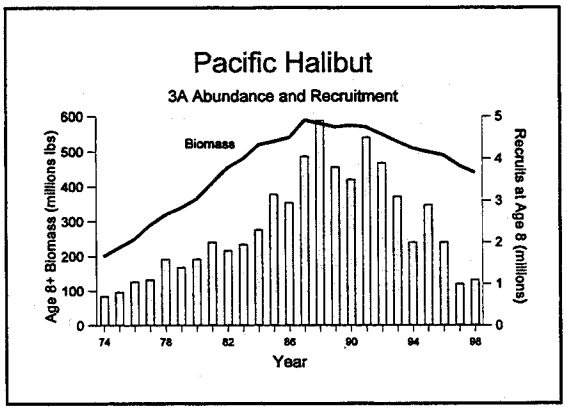
It is important to note that the TAC for sablefish is apportioned among gear types. Since 1990, in the Bering Sea, 50% of the sablefish is allocated to trawl gear and 50% to fixed gear. In the Aleutians region, 25% is allocated to trawl gear and 75% to fixed gear. Longlined pots are a legal gear type for sablefish in the Bering Sea and Aleutian Islands, but not in the Gulf of Alaska. The fixed gear apportionment of the sablefish TAC is managed under the IFQ program, which began in 1995. Twenty percent of the fixed gear allocation is reserved for use by CDQ participants. Important state water sablefish fisheries occur in Chatham Strait, Clarence Strait, Prince William Sound, and the Aleutians.

Other Species

The "other species" category has been established to account for groundfish species that are currently of slight economic value and for which there is little, if any, directed fishing. However, other species are considered ecologically important and may have future economic potential; therefore an aggregate annual quota limits their catch (NMFS 2002a). The category includes squid, which are considered separately from the rest of the "other species" BSAI management group, sculpins, sharks, skates, and octopus. Many of these species are important components of the ecosystem as prey for commercial species, marine mammals, and seabirds. Octopus, for example, are consumed by Steller sea lions, northern fur seals, harbor seals, sperm whales, and other beaked whales. For most of the "other species," only minimal assessment data are available, and thus they are assessed based on Tier 6 criteria. This means that the "other species" complex ABC is set using 75% of the average catch of the complex between 1978-1995, and the overfishing level as average catch over the same period. The 2003 ABC for the BSAI is 43,300 mt, the overfishing level is 81,100 mt, and the TAC is 32,309 mt. Using the same method, the 2003 ABC and TAC for squid is 1,970 mt and the overfishing level is 2,620 mt.

Among fixed gear sectors of the Bering Sea Pacific cod fishery, pot gear vessels catch a relatively high number of octopus, while the hook-and-line vessels account for a high proportion of the sharks and skates taken by the groundfish fisheries (see Section 2.2.2).

Pacific Halibut



Pacific halibut is considered to be one large interrelated stock, but is regulated by subareas through catch quotas. The commercial and recreational fishery has a long tradition dating back to the late 1800s. Further details on the management, production history, and life history of Pacific halibut are described in Section 3.7.2 of the Draft Programmatic Supplemental Environmental Impact Statement (NMFS 2001a).

The most recent halibut stock assessment was conducted by the IPHC in December 2002. The application of new ageing methodology in this assessment and the need to further improve the procedure to combine two different age estimates in the data series caused the IPHC staff to recommend maintaining the 2002 catch limits for 2003. The halibut resource is generally considered healthy, with total catch and stock biomass near record levels. However, research conducted in 2003 on the harvest policy may indicate a more conservative approach to catch limit setting in the future. The estimate of exploitable halibut biomass in Alaska for 2002 was 318,000 mt. The exploitable biomass of Pacific halibut stock apparently peaked at 326,520 mt in 1998 (Sullivan 1998). The long-term average reproductive biomass for the resource was estimated at 118,000 mt (Parma 1998). Long-term average yield was estimated at 26,980 mt, round weight (Parma 1998).

The halibut season is March 1 - November 15, and the halibut species is fully utilized. Recent catches (2001) were 61.1 million lbs for Alaska and 12.7 million lbs for Canada (2001). An additional 450,000 lbs was taken in the management area off the California, Washington, and Oregon coast by commercial and sport fishermen (additional treaty Indian ceremonial and subsistence fish are also harvested) for a combined total of 74.3 million lbs for the eastern North Pacific halibut resource (net weights). The total IPHC commercial quota limit for 2003 is the same as 2002 at 74.92 million pounds, about a 2% increase from the 2001 coast-wide quota of 73.18 million pounds. The total Alaska 2003 catch limit (61.86 million lbs) represents the same as 2002 and a slight increase from 2001 (61.53 million lbs). The IPHC commercial quota for 2003 in the BSAI (Area 4) is as follows: Area 4A - 4.97 million lbs; Area 4B - 4.18 million lbs; Areas 4C - 2.03 million lbs; Area 4D - 2.03 million lbs; and Area 4E - 390,000 lbs. Most of the BSAI halibut TAC is allocated to the CDQ Program, specifically, 20% of Area 4B, 50% of Area 4C, 30% of Area 4D, and 100% of Area 4E.

2.1.2 The Human Environment

2.1.2.1 BSAI Pacific cod fixed gear fishery and participants

The most recent descriptions of the Pacific cod fixed gear fishery are contained in the Economic Status of the Groundfish Fisheries Off Alaska, Appendix D of the Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions (Hiatt 2002) and the Draft Programmatic SEIS (NMFS 2001a). The SAFE document includes information on the catch and revenues from the fisheries, the numbers and sizes of fishing vessels and processing plants, and other economic variables that describe or relate to the performance of the fisheries. Sections 2.1.6 - 2.1.9 of the DPSEIS (Appendix I) describe the characteristics and activities of pot and longline catcher vessels of various lengths operating in the BSAI, and Sections 2.2.4 and 2.2.5 provide the same general information

for pot catcher processors and longline catcher processors, respectively. In addition to reporting the catch and revenues from the BSAI Pacific cod fishery by fixed gear vessels, that document contains detailed information on the owners by region of residence, the annual cycle of operations and dependence on the groundfish fisheries, and crew employment. Please see these documents for further details on the Pacific cod fishery in the BSAI.

Table 2.1: Catch (mt) of Pacific cod in the BSAI by gear type, 1985-2001

Year	Trawl	Longline	Pot	Jig	Total
1985	51,885	50	0	0	51,935
1986	38,430	49	63	0	38,542
1987	48,701	1,417	89	0	50,207
1988	95,404	2,611	329	0	98,344
1989	123,864	14,219	164	0	138,247
1990	122,425	47,716	1,389	0	171,530
1991	131,684	79,696	6,673	0	218,053
1992	90,264	101,249	13,681	117	205,311
1993	99,074	66,153	2,098	35	167,360
1994	100,542	87,138	8,254	730	196,664
1995	121,349	102,939	20,248	599	245,135
1996	113,089	94,701	32,617	267	240,674
1997	111,273	124,159	22,068	262	257,762
1998	81,903	99,921	13,632	192	195,648
1999	68,339	89,337	16,150	169	173,995
2000	53,815	97,823	18,783	71	191,056
2001	50,752	96,874	16,507	71	164,204
2002	77,731	89,804	14,878	164	182,577

* Preliminary data from weekly production and observer reports through December 31, 2002. Data (round weights) includes both retained and discarded catch. Note that Pacific cod catch is not targeted using the same method as in Tables 3.3 and 3.4.

The Pacific cod stock is targeted by multiple gear types, principally by trawls and hook-and-line catcher processors, and smaller amounts by hook-and-line catcher vessels, jig, and pot gear. A history of Pacific cod catch in domestic fisheries is shown in Table 2.1. Catches from foreign trawl and hook-and-line vessels (through 1987) and joint venture trawling (1980-1990) are not included in the table. Trawl landings ranged from 82,000 to132,000 mt per year since the late 1980s; PSC halibut limits and later allocation decisions prohibited additional cod from being taken with trawl gear. Harvests from fixed gear vessels increased as these fisheries developed. Longline catch greatly increased from 1988 (2,611 mt) through 1995 (102,939 mt) and has since fluctuated around 95,000 mt. Vessels using pot gear began to make significant landings in 1990 (1,389 mt), increasing to a high of 32,617 mt in 1996.

As stated previously, the BSAI Pacific cod TAC is currently allocated 2 percent to jig gear, 51 percent to fixed gear, and 47 percent to trawl gear (**Amendment 46**). Under **Amendment 64**, 80 percent of the fixed gear apportionment is reserved for hook-and-line catcher processor vessels, 18.3 percent for pot vessels, 0.3 percent for hook-and-line catcher vessels, and 1.4 percent for fixed gear catcher vessels less than 60' length overall. **Amendment 24** regulations allow seasonal apportionment of the Pacific cod TAC allocated to vessels using hook-and-line or pot gear. Seasonal apportionments are currently divided among two seasons and established through the annual specifications process. Both hook-and-line sectors currently have specified seasonal apportionments as follows: the A season is Jan. 1 - June 10 and the B season is June 10 - Dec. 31. Any unused portion of a seasonal Pacific cod allowance is reapportioned to the next seasonal allowance, providing there is halibut bycatch allowance remaining. There is no halibut bycatch allowance provided for hook-and-line vessels from June 10 - August 15, thus the second Pacific cod season for the longline sector essentially starts in mid-August. Any unused Pacific cod TAC from the jig or trawl gear fishery becomes available to the pot sector and the hook-and-line catcher processors in the fall by regulation, usually sometime in mid-September or October.

Seasonal apportionments for the BSAI pot cod sector were first established in 2001 under an emergency rule to address Steller sea lion protection measures. Pot catcher processors and pot catcher vessels ≥60' are apportioned 60% of the overall pot allocation in the first (A) season: January 1 - June 10, and the remaining 40% in the second (B) season: August 15 - December 31. In 2002, under management measures provided for in the Steller Sea Lion SEIS (NMFS 2001c), the fall season was changed to

September 1 - December 31. Any unused portion of a seasonal Pacific cod allowance is reapportioned to the next seasonal allowance. No seasonal harvest constraints are imposed on the catcher vessels <60' in the BSAI cod fishery.

At the same time the Council initiated the analysis for Amendment 64, an analysis was initiated to support a follow-up amendment (**BSAI Amendment 67**) to add a Pacific cod endorsement to licenses held by fixed gear vessels that qualify for a BSAI endorsement under the current LLP and meet specified qualification criteria. In April 2000, the Council defined qualification criteria for hook-and-line catcher processors, hook-and-line catcher vessels ≥60', pot catcher processors, and pot catcher vessels ≥60' (see box below). In addition, the Council recommended that vessels <60' not be required to have a cod endorsement to participate in the BSAI cod fishery. Because the Pacific cod endorsement is added to a vessel's Federal LLP license, the resulting number of vessels in each sector that qualify under the endorsement criteria depends on the number of vessels that also hold an LLP license. The requirement for a cod endorsement was effective January 1, 2003. Until the NMFS appeals process is complete regarding both LLP licenses and cod endorsements, the exact number of ≥60' vessels that qualify to fish BSAI Pacific cod with hook-and-line or pot gear remains uncertain.

Required catch history to earn a Pacific cod endorsement under **Amendment 67** is defined as follows:

1. Freezer longliners must have made at least 270 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one of the years 1996, 1997, 1998, or 1999.
2. Longline catcher vessels ≥60' must have made at least 7.5 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one year 1995, 1996, 1997, 1998, or 1999.
3. Pot catcher processors must have made at least 300,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995, 1996, 1997, or 1998.
4. Pot catcher vessels ≥60' must have made over 100,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995, 1996, 1997, 1998 or 1999.
5. Jig landings of Pacific cod count toward the qualification requirements for pot catcher vessels and hook-and-line catcher vessels.

A review of fishtickets and Blend data (by NPFMC staff, as of February 2003) shows that currently 6 pot catcher processors, 40 hook-and-line catcher processors, 57 pot catcher vessels ≥60', and 9 hook-and-line catcher vessels ≥60' appear to qualify for a BSAI Pacific cod endorsement on their LLP license.[3] This constitutes a total of 112 cod endorsements. In the case that a vessel owner appeals their (lack of) cod endorsement status, RAM Division must issue an 'interim' license until a final agency determination is made. Thus, the RAM Division has issued (as of April 2003) 41 cod endorsements in excess of the number that staff has identified above: 11 pot catcher processor, 48 hook-and-line catcher processor, 82

[3] Six of the 9 qualified longline catcher vessels are longline catcher processors that only met the longline CV qualifications. These vessels would only be allowed to harvest from the 0.3% of the BSAI cod quota allocated to the longline catcher vessel fleet. Three of the 57 qualified pot catcher vessels are pot catcher processors that only met the pot CV qualifications.

pot catcher vessel, and 12 hook-and-line catcher vessel endorsements.[4] This results in 153 endorsements issued to 138 individual vessels (12 vessels have or claim multiple endorsements).[5]

Several of the endorsements issued by RAM to-date are under appeal and thus, the licenses are designated 'interim'. Of the 138 individual vessel licenses with one or more cod endorsements, 46 of those vessels have interim licenses and the remaining 92 have transferable licenses. Of those 46 with interim licenses, six are being appealed on the basis of their Gulf of Alaska area endorsement, and not any other part of the license (non-trawl, BS/AI, cod endorsement, or general qualification). Thus, a better estimate of the current status of the RAM list is about 98 licenses that will remain eligible to fish BSAI Pacific cod in the long-term, and 40 interim licenses, the status of which are uncertain but may result in these vessels not being eligible to fish BSAI Pacific cod in the future.

The RAM list, which includes both transferable and interim licenses, identifies the number of fixed gear vessels that are eligible to fish BSAI Pacific cod in 2003. However, in the *long-term*, staff believes that the numbers will be closer to those identified by our analysis of recent catch histories. Since the action under Amendment 67 is considered a long-term program, staff used its (lower) qualifying numbers for the purpose of this analysis. The number of eligible vessels will be certain once a final agency determination is made on each appeal. Recall also that the total effort in the catcher vessel sectors will be influenced by the level of participation in the <60' fleet, which was not restricted by Amendment 67.

Recall that Amendment 64 also establishes a set-aside for vessels <60' of 1.4% of the fixed gear Pacific cod TAC. In selecting the no action alternative for vessels <60' under Amendment 67, the Council wanted to ensure that this small vessel class would be large enough to take their entire allocation. In considering the small number of participating vessels and the historical effort of the <60' fleet, the Council determined that limiting the <60' class was both unnecessary and detrimental to the small boat fleet. Therefore, because there are no gear endorsements in place for approximately 125 hook-and-line and pot vessels <60' that qualify for a general non-trawl BSAI groundfish LLP license, the potential exists for a maximum of 125 vessels <60' to fish Pacific cod in the BSAI using pot or hook-and-line gear. A more realistic estimate, however, may be based on the number of <60' vessels that have recently been participating in the BSAI Pacific cod fishery. Although 32 unique pot catcher vessels <60' and 96 longline vessels <60' have made at least one BSAI Pacific cod landing during 1995 - 2001, the average number participating each year is 5 pot and 18 longline vessels <60'. Most recently in 2001, 6 pot and 31 longline vessels <60' participated in the BSAI Pacific cod fishery; these vessels harvested <1% of the entire fixed gear BSAI Pacific cod catch. (In addition, vessels that do not exceed 32 feet LOA in the BSAI are exempt from the LLP requirements).

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[4]These numbers reflect the state of RAM's current Amendment 67 determinations as of 4/14/03; note that RAM determinations may be appealed, so the endorsements (or lack thereof) maintained at this time may change. Non-transferable (interim) licenses will be issued in the case that an applicant has made claims that differ from the "NMFS Official LLP Record." This status may be due to Amendment 67 claims, or to claims related to any other license endorsements or designations.

[5]Vessels that qualified for a cod endorsement using both hook-and-line and pot gear will receive both endorsements on their license. However, one license cannot hold more than one endorsement for the same gear type (e.g., the same license cannot hold an endorsement for both a hook-and-line catcher processor and a hook-and-line catcher vessel.) The vessel receives the 'highest' gear endorsement for which it qualifies.

2.1.2.2 Participants' communities of residence

The most recent available vessel owner residency data are from the CFEC vessel license file for 2001. Of the 75 pot catcher vessel participants in the BSAI Pacific cod fishery in 2001, 20 were from Alaska and 55 were from outside of Alaska. The majority of the Alaskan owners were from Kodiak, with the remaining vessel owners reporting residency in Anchorage, Homer, and King Cove. The 55 pot catcher vessel participants from outside of Alaska were primarily from Washington, with a few from Montana, Oregon, and California. Of the pot catcher processor vessels that participated in 2001, one of the six vessel owners reported residency in Alaska and the other five were from Washington.

In the hook-and-line catcher vessel sector, 32 of the 49 vessel owners participating in 2001 were from Alaska. The small majority of these vessel owners were from Kodiak, with the remaining owners reporting residency in Anchor Point, Dutch Harbor/Unalaska, Homer, Petersburg, Saint Paul, Sitka, and Willow. Of the 17 vessel owners that reported residency outside of Alaska, the majority were from Washington. Of the hook-and-line catcher processor vessels that participated in 2001, 30 of the 42 vessel owners reported residency in Washington, 8 in Alaska, 1 in California, and the other 3 were unknown.

2.1.2.3 Ports of landing

The primary ports of landing for cod harvested by longline or pot catcher vessels are Dutch Harbor, Akutan, Saint Paul, and King Cove. In 2001, additional deliveries were made to shorebased processors in Adak, Kenai, and Kodiak. The majority of fixed gear deliveries (68 percent in 2001) are typically made to the five processors in Dutch Harbor, with the remaining deliveries made to single processors in the other ports

Other than from trawl vessels, deliveries of BSAI cod to shorebased processors come primarily from pot boats. Of the total pounds delivered by fixed gear catcher vessels to shoreside plants in 2001, 96 percent were delivered by pot boats. In 2001, about 550 mt were delivered shoreside by longline catcher vessels, while about 12,740 mt were delivered by pot catcher vessels. In 2001, the vast majority (96%) of the longline shoreside deliveries were to shore plants in Dutch Harbor, with much smaller amounts delivered to Adak, King Cove, Kenai, and Saint Paul. Pot boat deliveries were also primarily (66%) to shore plants in Dutch Harbor, with lesser amounts to Akutan, Saint Paul, King Cove, Kodiak, and Adak.[6] This distribution is the same when reflected as a percentage of the overall estimated value of cod deliveries.

Deliveries of Pacific cod contribute to the economies of the shore plants and the communities in which they are located, though these amounts are unlikely to be significant in the context of the other groundfish, pollock, and crab processing activities that occur in these same plants and communities. With the exception of the King Cove plant, they all have small purchases of Pacific cod relative to other groundfish, particularly pollock. To the extent they do purchase cod, the majority of that comes from trawl deliveries. For the King Cove plant, Pacific cod does constitute the majority of its groundfish purchases, with nearly half of that amount coming from pot vessels.

A split of the quota as proposed would continue to constrain the amount of cod going to these plants similar to the past four years, if one assumes that the pot vessel share of the pot harvest and deliveries would increase under the baseline (no action alternative) or if Alternative 4 is not selected. However,

[6] In addition, about 15% of the total cod harvest by fixed gear catcher vessels was delivered to floaters, catcher processors, or the vessels acted as catcher sellers.

these same plants are likely to be limited to their historic levels of cod processing regardless, via the sideboard provisions of the American Fisheries Act (AFA).

2.2 Environmental Impacts of the Alternatives

2.2.1 Impacts on Pacific cod stock

No changes to calculation of the total TAC of Pacific cod are proposed by this amendment. The amendment would allocate the fixed gear TAC among the pot and longline sectors in apportionments that reflect recent historical harvests by the separate sectors. Any Pacific cod harvested must be landed under IR/IU regulations (there are a few narrowly defined exceptions). The total amount of Pacific cod harvested should be about the same under any option, since there should be few unaccounted for discards at-sea. The method of determining the appropriate Pacific cod TAC will not be changed, and all bycatch should be counted against the TAC. Moreover, the intent of this proposed amendment is to prevent significant increase or change in the harvest shares of the gear sectors by establishing allocations that closely approximate recent historical activity. The proposed amendment, therefore, would serve to prevent biological impacts that might be possible under the no action alternative, which would allow separate allocations to the different fixed gear sectors to expire, and which would thus leave the fishery open to changes in effort within the different gear sectors.

2.2.2 Impacts on halibut, crab stocks, other groundfish, and other species

Vessels in the fixed gear Pacific cod fishery catch other species incidentally when prosecuting a directed fishery. Bycatch includes prohibited species (primarily halibut and crab), other groundfish target species, and other species. Much of the bycatch is discarded. The ecological concern with bycatch and discards is that they have the potential to alter the regular paths of energy flow and balance in the marine system.

Halibut

Bycatch mortality in the BSAI fixed gear fisheries is limited by a prohibited species cap (PSC) of 900 mt. This cap is apportioned to the Pacific cod fishery, all other non-trawl fisheries including jig gear and groundfish pot fisheries (both exempt in recent years). The pot (and jig) sector has been exempted from halibut bycatch allowances for several years due to the very low incidence of halibut bycatch in the directed pot cod (and jig) fisheries. The longline sector, both catcher processors and catcher vessels, have a combined annual halibut bycatch allowance. The halibut mortality cap is further apportioned into three seasons. Fisheries are shut down when seasonal caps are reached and do not reopen until the next seasonal allowance becomes available. In recent years, the discard mortality rate applied to halibut was 12% for Pacific cod longline and 10% to pot fisheries.

Table 2.2: Bycatch mortality (mt) of halibut in the BSAI fixed gear Pacific cod fishery, 1999-2002*

Gear	1999	2000	2001	2002
hook-and-line	500	711	776	563
pot gear	3	1	2	5

*Reported by NMFS Blend estimates. 2002 data is through 11/16/02.

In 2002, the bycatch allowance for the hook-and-line BSAI Pacific cod fishery was 775 mt, apportioned among the three longline seasons as shown below. Because there is no halibut allowance during the second season, in effect, the longline directed cod fisheries are restricted between June 10 and August 15. Any unused halibut PSC apportioned to the nontrawl Pacific cod directed fishery during the January 1

through June 10 time period is not available until after August 15. This same apportionment of halibut bycatch is recommended for the 2003 fishing season.

(Jan 01 - Jun 10)	320 mt
(Jun 10 - Aug 15)	0 mt
(Aug 15 - Dec 31)	455 mt
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Annual Total	775 mt

The incidental catch of halibut in the BSAI hook-and-line directed cod fishery (not including CDQ harvest) during 1999 - 2001 was 4,545 mt, 6,467 mt, and 6,468 mt, respectively. Comparatively, the incidental catch of halibut with pot gear was 70 mt, 32 mt, and 44 mt over the same time period. For 2002, including catch only through the week of November 16, the halibut bycatch in the directed Pacific cod hook-and-line fishery was 4,692 mt and the pot gear catch was 132 mt.

Bycatch mortality of halibut in the Pacific cod target fisheries during 1999 - 2002 is shown in Table 2.2. Most of the mortality is attributable to the Pacific cod hook-and-line fishery. Halibut is also taken as bycatch in directed longline fisheries for sablefish, turbot, and rockfish.

An increase in the allocation of cod to pot gear (relative to the current levels) may allow a decrease in the overall halibut caps because the bycatch mortality is less with pot gear (and this gear has been exempt from halibut bycatch limits).

Crab

The majority of crab bycatch taken in the BSAI fixed gear groundfish fisheries is attributable to Pacific cod fishing using pot gear. It should be noted, however, that bycatch of crabs in groundfish pot fisheries has been very small relative to other sources of crab bycatch mortality (i.e., groundfish trawl, crab pot fisheries).

Some crabs are caught incidentally by fixed gear in pursuit of groundfish, and a portion of these crabs die. The pot fisheries typically experience increased crab bycatch compared to the longline fisheries. According to NMFS crab bycatch reports, in 2001, the hook-and-line sector in the directed Pacific cod fishery averaged Bairdi crab bycatch of about .08 crab per metric ton of total groundfish harvested in the first three months of the cod fishery, and about .15 Bairdi per metric ton of cod in the B season (August 15 - Dec. 31). Bycatch of red king crab in the longline cod fisheries averaged about .05 and 0.19 crab per metric ton of total groundfish harvested during those same time periods, respectively. In the 2001 BSAI Pacific cod fishery, the pot sector averaged 2.5 Bairdi per mt of groundfish harvested in the first three months of the directed cod fishery, decreasing to .46 in the B season (September 1 - December 31). Bycatch of red king crab averaged .04 and .007 crab per metric ton of groundfish harvested during the same time period, respectively.

Because this amendment does not change the amount of Pacific cod harvested overall by fixed gear in the BSAI Pacific cod fishery, and because the allocations do not change significantly among the alternatives for consideration, the total amount of bycatch and the relative bycatch attributed to each sector is not expected to change (except, potentially, under the No Action alternative). All allocated groundfish bycatch is counted against the TACs, and all prohibited species bycatch is counted against the PSC limits, thus no ecological impacts are projected to result from this amendment.

Groundfish

Bycatch of groundfish in the fixed gear Pacific cod fisheries is mainly comprised of the "other species" category, pollock, and arrowtooth flounder. Most of the bycatch is discarded. Table 2.3 shows the bycatch and discards of these species in the Pacific cod fishery, by vessel category for the years 1995 - 2001. Discard rates for Pacific cod were not included in the table. Currently, Pacific cod are covered under the IR/IU program which requires full retention. Only in cases where retaining Pacific cod would potentially affect the quality of other fish onboard (i.e., previously caught fish) or when required by other regulations, can they be discarded. Therefore, it is assumed that under current fishing regulations almost all of the Pacific cod will be retained. Pollock is also currently included under the IR/IU program in the Bering Sea and Aleutian Islands. Pollock discard rates, especially in the hook-and-line catcher processor sector, are noticeably lower starting in 1998, from 87.8% in 1995 to 16.6% in 2001.

Groundfish discards in the BSAI fixed gear cod fishery are relatively low, with hook-and-line catcher processors accounting for the majority. In 2001, hook-and-line catcher processors fishing BSAI Pacific cod reported 15,379 mt of discards and hook-and-line catcher vessels reported 70 mt. This represents about 16% and 11% of each sector's total annual directed cod catch, respectively, and is comprised mainly of other species (see next section). In 2001, pot catcher processors reported 60 mt of discards and pot catcher vessels 499 mt, which represents about 2 and 3 percent of their total directed cod catch, respectively. The bycatch in the pot sector is also made up mainly of other species.

Should Alternative 3 be selected as opposed to the status quo, the hook-and-line catcher processor sector's allocation would be increased by 0.5 - 1.6 percent. Because groundfish discards (as a percentage of this sector's total catch) is greatest in this sector, any substantial shift in quota from the hook-and-line catcher processors to another fixed gear sector will likely reduce the overall discard rate. However, none of the alternatives under consideration represent a substantial shift in the current allocations or, for that matter, the historical harvest distribution among the fixed gear sectors. Because the discard rate is similar in each pot sector, a split among the pot sectors (under Alternative 4) would not be expected to significantly affect the overall discard amounts.

Table 2.3: Bycatch and Discards in the Pacific cod Target Fishery, 1995-2001

Species	1995			1996			1997			1998		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Hook-and-line Catcher Processors												
Atka Mack.	38	0	100.0%	33	0	100.0%	40	1	98.0%	91	6	93.4%
Pollock	3,018	367	87.8%	2,882	281	90.3%	4,470	742	83.4%	3,220	2,524	21.6%
Y. Sole	62	0	100.0%	148	6	95.7%	235	19	91.8%	260	8	96.9%
Rock Sole	33	22	32.0%	60	2	96.4%	35	1	97.0%	51	0	100.0%
Flathead Sole	249	4	98.3%	270	11	95.9%	343	31	91.1%	408	36	91.2%
O. Flatfish	10	0	100.0%	21	2	92.7%	27	1	98.0%	32	0	100.0%
G.Turbot	320	133	58.3%	341	168	50.7%	458	224	51.0%	323	263	18.6%
Arrowtooth	1,684	124	92.6%	2,094	226	89.2%	2,188	240	89.0%	1,552	148	90.5%
POP	9	0	100.0%	2	0	95.2%	0	0	100.0%	1	0	100.0%
SR/RE	-	-	-	116	68	41.4%	55	0	100.0%	201	33	83.6%
O. Rockfish	13	1	90.2%	78	14	82.6%	79	11	85.5%	101	25	75.2%
Sablefish	33	22	32.0%	81	63	22.9%	53	33	37.8%	26	14	46.2%
O. Species	10,457	1,340	87.2%	8,345	1,327	84.1%	12,916	2,007	84.5%	13,799	1,389	89.9%
Total	**15,926**	**2,013**	**87.4%**	**14,471**	**2,168**	**85.0%**	**20,899**	**3,310**	**84.2%**	**20,065**	**4,446**	**77.8%**

Table 2.3 continued.

Species	1999			2000			2001		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Hook-and-line Catcher Processors									
Atka Mack.	72	4	94.4%	136	4	97.1%	269	132	50.9%
Pollock	3,373	2,915	13.6%	4,355	3,478	20.1%	5,305	4,422	16.6%
Y. Sole	150	5	96.7%	288	16	94.4%	618	19	96.9%
Rock Sole	73	5	93.2%	30	0	100.0%	31	1	96.8%
Flathead Sole	244	8	96.7%	293	14	95.2%	253	14	94.5%
O. Flatfish	94	2	97.9%	131	1	99.2%	94	1	98.9%
G.Turbot	167	138	17.4%	140	77	45.0%	167	130	22.2%
Arrowtooth	666	57	91.4%	1,134	63	94.4%	1,289	76	94.1%
POP	0	0	100.0%	9	0	100.0%	5	0	100.0%
SR/RE	103	8	92.2%	120	35	70.8%	189	57	69.8%
O. Rockfish	73	5	93.2%	65	5	92.3%	116	31	73.3%
Sablefish	19	10	47.4%	66	9	86.4%	43	15	65.1%
O. Species	8,340	903	89.2%	11,269	1,766	84.3%	13,576	1,678	87.6%
Total	**13,374**	**4,060**	**69.6%**	**18,036**	**5,468**	**69.7%**	**21,955**	**6,576**	**70.0%**

Table 2.3 continued.

Species	1995			1996			1997			1998		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Hook-and-line Catcher Vessels												
Pollock	1	0	100.0%	1	0	100.0%	3	0	100.0%	-	-	-
O. Flatfish	-	-	-	-	-	-	2	0	100.0%	-	-	-
G. Turbot	0	0	100.0%	49	0	100.0%	1	0	100.0%	1	0	100.0%
Arrowtooth	1	0	100.0%	38	0	100.0%	3	0	100.0%	12	-	-
O. Rockfish	-	-	-	13	0	100.0%	0	0	100.0%	0	0	100.0%
Sablefish	-	-	-	9	0	100.0%	0	0	100.0%	0	0	100.0%
O. Species	0	0	100.0%	62	0	100.0%	14	0	100.0%	11	0	100.0%
Total	**2**	**0**	**100.0%**	**172**	**0**	**100.0%**	**23**	**0**	**100.0%**	**24**	**0**	**100.0%**

Species	1999			2000			2001		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Hook-and-line Catcher Vessels									
Pollock	2	2	0.0%	27	23	14.8%	0	0	100.0%
O. Flatfish	0	-	-	0	-	-	0	-	-
G. Turbot	16	10	37.5%	3	3	0.0%	11	11	0.0%
Arrowtooth	7	0	100.0%	15	1	93.3%	5	0	100.0%
O. Rockfish	2	1	50.0%	3	2	33.3%	6	5	16.7%
Sablefish	6	6	0.0%	13	13	0.0%	52	39	25.0%
O. Species	58	0	100.0%	52	2	96.2%	51	-	-
Total	**91**	**19**	**79.1%**	**113**	**44**	**61.1%**	**125**	**55**	**56.0%**

Table 2.3 continued.

Species	1995			1996			1997			1998		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Pot Catcher Processors												
Atka Mack.	0	0	100.0%	5	2	68.0%	5	1	72.9%	1	1	0.0%
Pollock	0	0	100.0%	8	0	100.0%	12	0	100.0%	2	1	50.0%
Y. Sole	1	0	100.0%	104	0	100.0%	32	0	100.0%	81	9	88.9%
O. Species	72	0	100.0%	138	41	70.0%	48	20	58.2%	42	11	73.8%
Total	**73**	**0**	**100.0%**	**255**	**43**	**83.1%**	**97**	**21**	**78.4%**	**126**	**22**	**82.5%**

Species	1999			2000			2001		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Pot Catcher Processors									
Atka Mack.	0	0	100.0%	0	-	-	1	0	100.0%
Pollock	10	2	80.0%	13	12	76.9%	7	2	71.4%
Y. Sole	31	0	100.0%	57	-	-	14	-	-
O. Species	83	17	79.5%	58	3	94.8%	42	2	95.2%
Total	**124**	**19**	**84.5%**	**128**	**15**	**88.3%**	**64**	**4**	**93.8%**

Table 2.3 continued.

Species	1995			1996			1997			1998		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Pot Catcher Vessels												
Atka Mack.	72	0	100.0%	48	0	100.0%	45	0	100.0%	14	0	100.0%
Pollock	13	0	100.0%	17	0	100.0%	30	1	97.9%	41	32	22.0%
Y. Sole	61	0	100.0%	148	0	100.0%	39	0	100.0%	30	0	100.0%
Arrowtooth	15	0	100.0%	12	0	100.0%	12	0	100.0%	1	-	-
O. Rockfish	3	0	100.0%	3	0	100.0%	3	0	100.0%	2	-	-
O. Species	442	2	99.4%	429	21	95.2%	307	15	95.3%	300	9	97.0%
Total	**606**	**2**	**99.7%**	**657**	**21**	**96.8%**	**436**	**16**	**96.3%**	**388**	**41**	**89.4%**

Species	1999			2000			2001		
	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate	Catch	Retained	Discard Rate
Pot Catcher Vessels									
Atka Mack.	11	0	100.0%	9	-	-	16	0	100.0%
Pollock	14	4	71.4%	47	20	57.4%	11	2	81.8%
Y. Sole	40	1	97.5%	13	0	100.0%	32	0	100.0%
Arrowtooth	17	2	88.2%	0	0	100.0%	28	0	100.0%
O. Rockfish	2	-	-	8	0	100.0%	3	0	100.0%
O. Species	654	51	92.2%	756	16	97.9%	418	7	98.3%
Total	**738**	**58**	**92.1%**	**833**	**36**	**95.7%**	**508**	**9**	**98.2%**

Source: NMFS Blend data, AK region, 1995 - 2001. Note: "0" means less than 1 mt. "-" means no data was available.

"Other species" category

Among fixed gear sectors of the BSAI Pacific cod fishery, pot gear vessels catch a relatively high number of octopus, while the hook-and-line vessels account for a high proportion of the sharks and skates taken by the groundfish fisheries. The table below lists the catches of "other species" incidental to the hook-and-line and pot gear Pacific cod fisheries in the BSAI from 1998 - 2001.

Catch (mt) of other species by Bering Sea/Aleutian Islands Pacific cod fisheries, 1998-2001

year	gear sector	Octopus	Sculpins	Sharks	Skates	total	% of total other species catch in BSAI groundfish fisheries
1998	pot	112	279	0	0.01	391	1.5%
	hook & line	35	1,527	169	13,535	15,266	58.1%
1999	pot	262	659	0	0.11	921	4.5%
	hook & line	22	1,177	124	9,651	10,974	53.8%
2000	pot	246	705	0	0.06	951	3.5%
	hook & line	42	1,462	170	12,976	14,650	54.3%
2001	pot	157	357	0	0.11	514	1.8%
	hook & line	36	2,145	271	14,117	16,569	56.7%

Source: 2001 and 2002 SAFE reports, NMFS.

In 1998, the pot gear Pacific cod fishery took 1.5 percent and the hook-and-line fishery took 58 percent of the 26,289 mt total catch of "other species" by the BSAI groundfish fisheries. In 1999 - 2001, the pot gear sector took 4.5 percent, 3.5 percent and 1.8 percent and the hook-and-line sector about 54 percent, 54 percent, and 57 percent of the respective totals of incidental catch of "other species" by the BSAI groundfish fisheries (20,406 mt, 26,971 mt, and 29,231 mt).

Any increase or decrease in harvest of Pacific cod by hook-and-line and pot fisheries and any substantial shift in effort between these fisheries would likely have a corresponding impact on incidental catch of "other species." The intended impact of the proposed amendment, however, is to prevent any significant change in the amounts and relative percentages of Pacific cod taken by the different fixed gear sectors by allocating catch among these sectors according to recent historical levels. The allocations resulting from Alternative 2 and Alternative 3 are very similar. At a maximum, the current allocations would increase by 1.6 percent for the catcher processor sector, decrease by 0.2 percent for the longline catcher vessel sector, and decrease by 0.5 percent for the pot sector. Because the potential allocations are not substantially modified from the status quo (which are based on historical harvest levels), the ancillary impact on "other species" would likely be to stabilize incidental catches of these species also at their historical levels and percentages according to gear sector.

2.2.3 Marine Mammals

Marine mammals not listed under the Endangered Species Act (ESA) that may be present in the Bering Sea/Aleutian Islands include cetaceans, [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)] as well as pinnipeds [Pacific harbor seal (*Phoca vitulina*), northern fur seal (*Callorhinus ursinus*), Pacific walrus (*Odobenus rosmarus*), spotted seal (*Phoca largha*), bearded seal (*Erignathus barbatus*), ringed seal (*Phoca hispida*) and ribbon seal (*Phoca fasciata*)], and the sea otter (*Enhydra lutris*).

Taking of the above listed marine mammals in the fixed gear fisheries has been monitored through the observer program. The subject fisheries (BSAI pot and longline Pacific cod fisheries) are classified as Category III. Category III fishery means a commercial fishery determined by the Assistant Administrator to have a remote likelihood of, or no known incidental mortality and serious injury of marine mammals (50 CFR 229.2). Potentially one marine mammal interaction occurred in 2002 in the pot cod fishery, but details of the incident will not be reported in the marine mammal stock assessment reports until 2003 (K.Brix, personal communication, 11/25/03).

None of the alternatives is expected to have an impact on direct incidental takings of marine mammal species since there will be relatively no change in fishing practices. The proposed amendment would continue or modify the current allocations to the BSAI Pacific cod fixed gear sectors. There is little or no difference among the apportionments resulting from each of the alternatives, as they reflect the recent harvest distribution among the separate sectors. The intent of the amendment is thus to prevent significant increase or decrease in the harvest shares of the fixed gear sectors by establishing allocations that closely approximate recent catch histories. Thus, because the fixed gear share of the BSAI Pacific cod TAC is unaffected by this amendment, and because the proposed allocations will approximate the historical catch distribution among the fixed gear sectors, no impact on marine mammals is expected. For further information see Section 3.4 of the DPSEIS (NMFS 2001a) and the following discussion.

2.2.4 Endangered or Threatened Species

The Endangered Species Act of 1973 as amended (16 U.S.C. 1531 *et seq*; ESA), provides for the conservation of endangered and threatened species of fish, wildlife, and plants. The program is administered by NMFS for most marine mammal species, marine and anadromous fish species, and marine plants species; and by the United States Fish and Wildlife Service (USFWS) for bird species, and terrestrial and freshwater wildlife and plant species.

The designation of an ESA-listed species as either threatened or endangered is based on the biological health of that species. Threatened species are those likely to become endangered in the foreseeable future [16 U.S.C. § 1532(20)]. Endangered species are those in danger of becoming extinct throughout all or a significant portion of their range [16 U.S.C. § 1532(20)]. Species can be listed as endangered without first being listed as threatened. The Secretary of Commerce, acting through NMFS, is authorized to list marine fish, plants, and mammals (except for walrus and sea otter) and anadromous fish species. The Secretary of the Interior, acting through USFWS, is authorized to list walrus and sea otter, seabirds, terrestrial plants and wildlife, and freshwater fish and plant species.

When NMFS or USFWS lists a species under the ESA, the agency must, concurrently, designate the critical habitat of the newly listed species "to the maximum extent prudent and determinable" [16 U.S.C. § 1533(b)(1)(A)]. The ESA defines critical habitat as those specific areas that are essential to the conservation of a listed species and that may be in need of special consideration. Federal agencies are prohibited from undertaking actions that destroy or adversely modify designated critical habitat. Some species, primarily the cetaceans, which were listed in 1969 under the Endangered Species Conservation Act and carried forward as endangered under the ESA, have not received critical habitat designations.

Federal agencies have an affirmative mandate to conserve listed species [16 U.S.C. § 1536(a)(1)]. Federal actions, activities or authorizations (hereafter referred to as Federal actions) must be in compliance with the provisions of Section 7 of the ESA, which provides a mechanism for consultation by the action agency with the appropriate expert agency (NMFS or USFWS). Informal consultations, resulting in letters of concurrence, are conducted for Federal actions that may affect, but are not expected to adversely affect, listed species or critical habitat. Formal consultations, resulting in biological opinions, are conducted for Federal actions that may have an adverse effect on the listed species.

Endangered and threatened species under the ESA that may be present in the BSAI

Common Name	Scientific Name	ESA Status
Northern Right Whale	*Balaena glacialis*	Endangered
Bowhead Whale	*Balaena mysticetus*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Blue Whale	*Balaenoptera musculus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Snake River Sockeye Salmon	*Oncorhynchus nerka*	Endangered
Short-tailed Albatross	*Diomedia albatrus*	Endangered
Steller Sea Lion	*Eumetopias jubatus*	Endangered and Threatened [1]
Snake River Fall Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened
Snake River Spring/Summer Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened
Puget Sound Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened
Lower Columbia River Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened
Upper Willamette River Chinook Salmon	*Oncorhynchus tshawytscha*	Threatened
Upper Columbia River Spring Chinook Salmon	*Oncorhynchus tshawytscha*	Endangered
Upper Columbia River Steelhead	*Onchorynchus mykiss*	Endangered
Snake River Basin Steelhead	*Onchorynchus mykiss*	Threatened
Lower Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Upper Willamette River Steelhead	*Onchorynchus mykiss*	Threatened
Middle Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Spectacled Eider	*Somateria fishcheri*	Threatened
Steller's Eider	*Polysticta Stelleri*	Threatened

[1] Steller sea lions are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Through the biological opinion, the expert agency determines whether the proposed action is likely to jeopardize the continued existence of a listed species (resulting in a jeopardy finding) or destroy or adversely modify critical habitat (resulting in an adverse modification finding). If the biological opinion results in a jeopardy finding the agency may suggest reasonable and prudent alternatives which, if implemented, would modify the action to avoid the likelihood of jeopardy to the species or destruction or adverse modification of designated critical habitat. A biological opinion with the conclusion of no jeopardy may contain recommendations intended to further reduce the negative impacts to the listed

species. These conservation recommendations are advisory to the action agency (50 CFR 402.25(j)). If a likelihood exists of any taking of a listed species (including, by definition, harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, or collecting) during promulgation of the action, an incidental take statement may be appended to a biological opinion to provide for the amount of take that is expected to occur from normal promulgation of the action.

Twenty-three species occurring in the GOA and/or BSAI management areas are currently listed as endangered or threatened under the ESA (see table above). The group includes great whales, pinnipeds, Pacific salmon and steelhead, and seabirds. Of the species listed under the ESA and present in the action area, some may be negatively affected by commercial groundfish fishing. Section 7 consultations with respect to the actions of the Federal groundfish fisheries have been done for all the species listed above, either individually or in groups. An FMP-level biological opinion was prepared pursuant to Section 7 of the ESA on all NMFS-listed species present in the fishery management areas for the entire groundfish fisheries. The opinion was issued November 30, 2000 (NMFS 2000). The action (the FMPs themselves) were determined to jeopardize the endangered population of Steller sea lions and adversely modify its critical habitat. Subsequently, a separate biological opinion was prepared in 2001 on the effects of the pollock, Pacific cod, and Atka mackerel fisheries on the endangered western distinct population segment (DPS) of Steller sea lions (2001 BiOp) (NMFS 2001b). In addition, a supplement to the 2001 BiOp was prepared in June 2003 (NMFS 2003).

2.2.4.1 The Western DPS of Steller Sea Lions

The Steller sea lion range extends from California and associated waters to Alaska, including the Gulf of Alaska and Aleutian Islands, into the Bering Sea and North Pacific, and into Russian waters and territory. Evidence of a major decline in Steller sea lion abundance throughout most of their range prompted several environmental organizations to petition NMFS to list all populations of Steller sea lion in Alaska as endangered. On April 5, 1990, NMFS issued an emergency rule (55 FR 12645) to list the Steller sea lion as a threatened species under the ESA and established emergency interim measures to begin the population recovery process. Under the ESA, the Steller sea lion west of Cape Suckling, Alaska, was listed as endangered in 1997 (62 FR 30772); the population east of Cape Suckling was listed as threatened.

NMFS has completed both an FMP level biological opinion (NMFS 2000) and a project level biological opinion on the Pacific cod fisheries in the BSAI (NMFS 2001b). The result of these consultations was a series of conservation measures aimed at spatially and temporally dispersing the Pacific cod fisheries. In a supplement to the 2001BiOp (NMFS 2003), NMFS further reviewed the actions taken in the pollock, Atka mackerel, and Pacific cod fisheries, and determined that these actions would not jeopardize the species or adversely modify its critical habitat.

In summary, this action has two major components which could have implications for Steller sea lions: (1) it continues to implement the gear allocations which were consulted on under the 2001 BiOp, and (2) it changes the seasonal apportionment of the jig gear allocation of Pacific cod and the timing for reallocation of unused portions of seasonal jig gear cod allocations. In terms of the first issue, Amendment 77 would not change the overall allocations and seasonal distributions established under Amendment 46 to vessels using trawl, hook-and-line, pot, and jig gear. Amendment 77 would also continue the subdivisions to fixed gear which were established under Amendment 64. The implications of these measures for Steller sea lions have been thoroughly discussed in the 2001 BiOp (NMFS 2001b) and its supplement (NMFS 2003).

However, Amendment 77 would make one change which could have implications for Steller sea lions. It would change the seasonal dispersement of the jig fishery's 2% allocation of BSAI Pacific cod TAC from a 60/40 apportionment, with the first season defined as Jan. 1 – June 10 and the second season defined as June 10 – December 31, to a 40/20/40 seasonal apportionment. The new seasonal apportionment would be defined on a trimester basis as follows: 40% January through April, 20% May through August, and 40% September through December. Any of the 2% jig gear quota that is projected to remain unused would be reallocated on a seasonal basis to catcher vessels <60' LOA using hook-and-line or pot gear (Alternative 2, Option 3). Current regulations constrain the reallocation of such unused quota to the hook-and-line catcher processor fleet on or after September 15.

At first glance, it would appear that the proposed change in jig seasons might result in less Pacific cod being harvested early in the year, because instead of the 60% allocation to jig gear ending on June 10, it proposes 40% ending in April and 20% more through August. However, the seasonal rollover provision would provide an opportunity to small hook-and-line or pot vessels < 60 ft. LOA to harvest any unused seasonal apportionment of the jig gear TAC during spring and summer months. Under status quo, the unused jig gear cod allocation is not made available to other fixed gear sectors until September. Historically, the average annual amount of reallocated jig gear TAC has been about 3,671 mt (Table 3.32). Theoretically, under the changed seasonal reallocations, up to 2,304 mt (60%) could be reallocated by August to vessels <60' LOA (based on the 2003 TAC; see Table 3.35).

Most of the seasonal reallocation of the jig gear TAC to vessels < 60 ft LOA would be harvested by pot vessels as opposed to hook-and-line vessels, because little or no halibut bycatch allowance typically is specified for the hook-and-line Pacific cod fisheries for the period extending from noon on June 10 through noon on August 15 as part of the rulemaking implementing the annual harvest specifications. Conversely, the annual harvest specifications historically have exempted vessels using pot gear from halibut bycatch limits due to low levels of halibut bycatch using this gear type. Unless the annual specifications for seasonal halibut bycatch allowances are modified, hook-and-line vessels will continue to be unable to participate in the directed BSAI Pacific cod fishery during summer months.

Because the reallocated jig gear TAC largely would go to smaller vessels using pot gear, any increased catch in the spring and summer months is likely to occur inside of critical habitat (0-20 nm) for Steller sea lions. Closure areas for these vessels extend only to 3 nm around rookeries and haulouts in the Eastern Bering Sea (NMFS 2003). Based on the distribution of observed catch on fixed gear vessels equal to or greater than 60 ft LOA, the hook-and-line catch in the 3-10 nm zone was 47 mt for the second quarter of 2002. The total catch in critical habitat (0-20 nm) during this same time period for these vessels was only 279 mt. No catch in critical habitat by vessels using pot gear is documented during this time period in 2002; however, because these estimates are based only on observed catch distribution, they would not account for any catch by pot vessels < 60 ft LOA (NMFS 2003). The total catch by all vessels using hook-and-line or pot gear in the third quarter of the year in 0-20 nm of critical habitat was 2,392 mt in 2002. Some of this catch was taken by vessels < 60 ft LOA, although Alaska Department of Fish and Game fish ticket data collected from this fleet on location of harvest is not sufficient to estimate harvests within 0-20 nm. Nonetheless, a reapportionment of the spring and summer jig gear TAC apportionments to vessels <60 ft LOA using pot or hook-and-line gear likely would result in some increase to their historic catch in these time periods inside critical habitat.
The 2001 BiOp did consider the effects of a two percent jig allocation and the seasonal apportionments thereof. Should the jig sector take its entire catch, the effect on Steller sea lions would be similar in some respects to the effect of a reallocation from jig vessels to, primarily, the smaller pot gear vessels. Vessels using pot gear have been exempted from Steller sea lion measures affecting other gear types

because their rate of harvest is sufficiently slower than other gear types to be less of a factor in local depletion of prey. In addition, <60' pot (and hook-and-line) vessels have been exempt from any seasonal apportionments under the current Stellar sea lion protection measures due to lower relative harvest rates. However, the pot fleet's rate of harvest is faster than that of jig vessels. Furthermore, although the 2001 BiOp did consider the impacts of the jig vessels taking their entire two percent allocation, they have never done so since the allocation was established, and instead have averaged less than 6% of their annual allocation per year during 1995 – 2001 (the most recent data available). Amendment 77 would change the fishery in that it would increase the potential for reallocated jig quota to be harvested earlier in the year by the <60' fixed gear vessels, as opposed to later in September by the hook-and-line catcher processor fleet.

2.2.4.2 Conclusions

The preferred alternative may affect the prosecution of the BSAI cod fisheries in a way not previously considered relative to Steller sea lions. However, NMFS has informally consulted on the preferred alternative and concluded that the proposed action is not likely to adversely affect the western DPS of Steller sea lions or adversely modify its critical habitat. Splitting the fixed gear cod quota among the various fixed gear sectors is not expected to affect takes of listed species. Therefore, none of the alternatives are expected to have a significant impact on endangered or threatened species.

2.2.5 Ecosystem Considerations

Ecosystem considerations for the BSAI groundfish fisheries are explained in detail in Ecosystem Considerations for 2003 (NMFS 2002b). This document provides updated information on biodiversity, essential fish habitats, consumptive and non-consumptive sustainable yields, trophic interactions, and human considerations. This information is intended to be used in making ecosystem-based management decisions such as establishing ABC and TAC levels. Additional information is found in Section 3.9 of the DPSEIS (NMFS 2001a). The proposed action is not expected to have any significant ecosystem impacts.

2.2.6 Impacts of gear types on habitat

Direct effects to the substrate and water are primarily caused by fishing gear which touches the bottom. This section will discuss the fixed gear that is used to pursue the BSAI Pacific cod, while the following section will provide an assessment of the impacts of the different types of fishing gear on essential fish habitat (EFH).

Most species (or species groups) are harvested predominately by one type of gear, which typically accounts for 85 percent or more of the catch. The one exception is Pacific cod. Since implementation of Amendment 46 (1997), 51 percent of the total BSAI Pacific cod catch has been allocated to fixed gear, 47 percent to trawl gear, and 2 percent to jig gear. In 2001, about 31 percent of the Pacific cod catch was taken by trawls, 59 percent by hook-and-line gear, and 10 percent by pots, with less than 1 percent taken by jig gear. In 2002 (preliminary data through 12/31/02), 43 percent was taken by trawls, 49 percent by hook-and-line gear, 8 percent by pot gear, and less than 1 percent by jig gear. Typically bycatch constraints in the trawl fishery and insufficient effort in the jig fishery contribute to Pacific cod quota being reallocated from these sectors to the hook-and-line and pot gear sectors late in the year. Under Amendment 64, the majority of the reallocated quota (95 percent) is apportioned to the hook-and-line catcher processors, and the remaining 5 percent is reallocated to pot gear.

Two studies have estimated the effects of Alaska hook-and-line and pot gear on benthic habitat. A preliminary spreadsheet analysis, prepared for the Essential Fish Habitat (EFH) Committee to evaluate

the effects of all FMP fisheries on EFH, examined the relative area potentially affected by each fishery (Witherell, 2002 unpublished manuscript). The spreadsheet analysis, which incorporates the information on gear descriptions and habitat types fished, found that groundfish fisheries (primarily trawl fisheries) had some measurable effect on benthic habitat, whereas the scallop, crab, and salmon fisheries (especially) had almost no measurable impacts primarily due to the small footprints of these fisheries relative to available habitats. The BSAI Pacific cod hook-and-line fishery was estimated to have a total footprint of only 117 nm^2 per year and the BSAI Pacific cod pot fisheries were estimated to have a total footprint of 0.1 nm^2 per year.

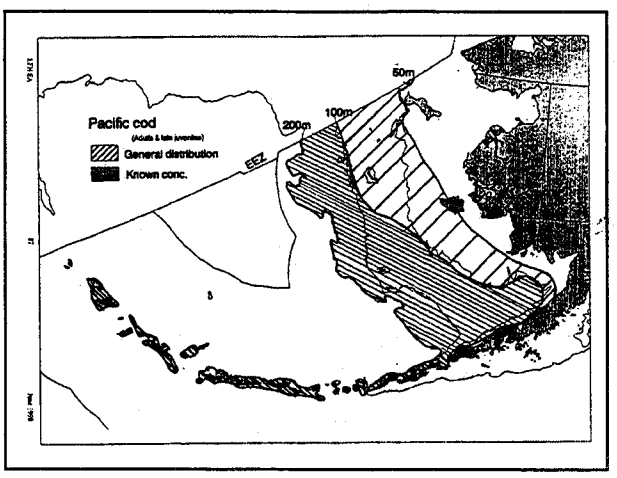
Another evaluation, prepared by NMFS staff on the potential adverse effects of groundfish fisheries on EFH, incorporates a spatial model of fishing intensity in the groundfish fisheries, together with habitat recovery rates (Rose, 2002 unpublished manuscript). The evaluation model allowed for the relative ranking of fisheries based on their effects on EFH. The results indicated that the highest impacts were due to trawl fisheries, and that biogenic shelter was the habitat function primarily affected. The results also indicated that the BSAI Pacific cod longline and pot fisheries had almost no detectable effects on habitat types or habitat features.

There are several other reports that review the effects of fishing gear on habitat outside of Alaska (e.g., Johnson, 2002; Northeast Region Essential Fish Habitat Steering Committee, 2002). These studies generally consider pot and longline fisheries to have relatively low impacts on sand and gravel habitats – the bottom types fished by the Bering Sea Pacific cod longline and pot fisheries.

Because none of the alternatives would substantially change the overall hook-and-line or pot quota for the BSAI Pacific cod fishery, the general level of effort from vessels using hook-and-line or pot gear to harvest cod is not expected to change as a result of this action. Thus, no additional impacts on habitat are expected under the proposed action.

2.2.7 Assessment of Impacts on EFH

Section 303(a)(7) of the Magnuson-Stevens Act requires all FMPs to describe and identify essential fish habitat (EFH), which it defines as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." In addition, FMPs must minimize effects on EFH caused by fishing and identify other actions to conserve and enhance EFH.



On January 20, 1999, the Council's five FMPs (BSAI groundfish, GOA groundfish, salmon, crab, and scallops) were amended to incorporate EFH provisions. These provisions include identification and description of EFH including habitat areas of particular concern, identification of research and information needs, and identification of potential adverse effects on EFH due to fishing and non-fishing activities. Additional information on EFH can be found in the EA for Amendments 55/55/8/5/5 (NPFMC 1999). The above map shows the location of EFH for adult Pacific cod in the BSAI. The EFH definitions adopted for BSAI Pacific cod life stages are listed in the table below.

EFH Definition for BSAI Pacific Cod, by life stage

Eggs (duration 15-20 days) - Level 0_a - Areas of mud and sand on the inner, middle, and outer continental shelf and upper slope throughout the eastern Bering Sea and Aleutian Islands in winter and spring.

Larvae (duration unknown) - Level 0_a - Epipelagic waters throughout the eastern Bering Sea and Aleutian Islands regions in winter and spring.

Early Juveniles (up to 2 years) - Level 0_a - Areas of mud and sand and the water column on the inner and middle continental shelf of the eastern Bering Sea and Aleutian Islands, particularly those with mysids, euphausiids and shrimp.

Late Juveniles (2-4 years) - Level 1 -Areas of soft substrate (clay, mud, and sand) and the lower portion of the water column on the inner, middle, and outer continental shelf areas of the eastern Bering Sea and Aleutian Islands, particularly those with mysids, euphausiids, shrimp, pollock, flatfish, crab, and fishery discards.

Adults (4+ years old) - Level 2 - Areas of mud and sand along the inner, middle, and outer continental shelf up to 500m along with the lower portion of the water column of the eastern Bering Sea and Aleutian Islands. Spawning occurs in January-May near the bottom across broad areas of the shelf, but predominately along the outer shelf between 100-200 m in the eastern Bering Sea, and throughout the area<200m in the Aleutian Islands. After spawning, the mature population spreads out throughout the shelf in the eastern Bering Sea and Aleutian Islands, but with concentrations along the outer shelf northwest of the Pribilof Islands and along the outer and middle shelf areas northwest of the Alaskan Peninsula and into Bristol Bay. Feeding areas are those containing pollock, flatfish, and crab.

Hook-and-line harvested cod are mostly taken along the slope of the continental shelf break and along the Aleutian Islands (NMFS 2001a). The pot gear fisheries for Pacific cod have also concentrated along the slope and the north side of Unalaska Island, Unimak Island and Unimak pass, with some relatively minor effort adjacent to the Aleutian Islands (Fritz et al. 1998). According to the EA for Amendment 56/56 to the BSAI and GOA Groundfish FMPs, the fixed gear Pacific cod fisheries occur within the EFH area used by nearly every groundfish and crab species. Primary overlap would occur with the following species: pollock, flathead sole, dusky rockfish, skates, sculpins, Tanner crab, and snow crab. Insufficient data exist to determine the extent of the potential impacts on EFH, beyond the fact that the Pacific cod fixed gear fishery occurs in the species general distribution. No evidence suggests that the fixed gear Pacific cod fishery would have any impact on the EFH of salmon or scallops.

The relative intensity of harvest by pot vessels versus longline vessels may be only slightly affected under the different alternatives proposed for distributing the Pacific cod pot allocation, as they are intended to reflect recent catch histories by each sector. Regardless, the total fixed gear cod allocation will remain the same. Because this action does not change the location of the fishery, the BSAI Pacific cod fixed gear TAC, or the manner in which cod are harvested, it is presumed not to increase the impacts of the fishery on EFH as a whole. The action is intended to stabilize the harvest distribution between the hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors and pot catcher vessels, but the harvest will remain within the area designated as Pacific cod EFH. Based on the above, this action, in the context of the fishery as a whole, will not adversely affect EFH for species managed under the five North Pacific FMPs. As a result of this determination, an EFH consultation is not required.

2.3 Context and Intensity as required by NEPA

To determine the significance of impacts of the actions analyzed in this EA, NMFS is required by NEPA and 50 CFR 1508.27 to consider both the *context* and the *intensity* of the action.

Context. The setting of the action is the commercial Pacific cod pot and hook-and-line fisheries in the Bering Sea and Aleutian Islands. Any effects of the proposed action are limited to this area. The effect on society within these areas is primarily isolated to the direct participants in the commercial fixed gear cod fisheries in the BSAI. There are no changes to commercial fishing practices; the intent of the proposed action is to continue to split the current (51%) fixed gear cod quota in the BSAI among hook-and-line catcher processors, hook-and-line catcher vessels, and pot vessels. An alternative also exists to further split the pot share of the BSAI fixed gear TAC between the pot catcher processor and pot catcher vessel sectors. The principal consequence of the proposed alternative is to allow each sector of the fishery a distinct quota, so one sector would not be able to encroach on another sector's relative historical harvest.

Intensity: A listing of considerations to determine the intensity of the impacts are in 50 CFR 1508.27(b) and in the NAO 216-6, Section 6. Each consideration is addressed below in the order it appears in the regulations.

1. **Adverse or beneficial impact determinations for marine resources, including sustainability of target and nontarget species, damage to ocean or coastal habitat or essential fish habitat, effects on biodiversity and ecosystems, and marine mammals.** The alternatives under consideration would create separate quotas for the BSAI fixed gear categories, based on the historical distribution of the harvest between the sectors during 1995-1999, or for the pot sector, 1995 - 2001. The principal benefit is to allow each fixed sector a distinct quota, which would prevent competition among the sectors for the cod quota and help to ensure that each sector receives its historical share. Based on past actions to allow sustained participation for the small boat fleet, alternatives exist which include a separate allocation to catcher vessels <60'. Whether this action would benefit one sector over another is difficult to determine and critically dependent upon the future harvest of each sector should no action be taken. Concern with increasing pot effort in the BSAI cod fisheries contributed to the initial proposal for this amendment. Relatedly, a larger share of the total pot harvest has been taken by pot catcher vessels in the past several years, up to 87% in 2000 and 83% in 2001. However, it is difficult to predict whether this trend will continue considering the impacts of Amendment 67, which, upon implementation, would reduce the pot catcher vessel sector in the BSAI cod fleet substantially. Section 3.4 has a more detailed discussion of the potential distributional and economic impacts of each of the alternatives and options.

The alternatives under consideration are expected to have very modest distributional impacts on the fixed gear sectors participating in the BSAI Pacific cod fishery. However, no significant impacts are expected on marine resources, habitat, essential fish habitat, ecosystem processes, or marine mammals, as discussed throughout Chapter 2.0 and concluded in Section 2.5.

2. No **public health and safety impacts** were identified in any of the proposed alternatives.

3. This action takes place in the **geographic area** of the Bering Sea and Aleutian Islands. The action is limited to the hook-and-line and pot cod fishery in the BSAI. No effects on the unique characteristics of this area are anticipated to occur with any alternative considered because fishing practices are not affected.

4. The effect of this action on the human environment is not **controversial** in the sense that it will not adversely affect the biology of the Pacific cod biomass. The action may be socially and economically controversial to the current and future participants in the fishery in that it would continue to define

distinct quotas for the fixed gear sectors. Depending on each sector's participants' perspective on how they would fare in the fishery if no action was taken, or if an alternative allocation scheme was approved, this action may or may not be controversial to the fixed gear sector participants. In one sense, the action may not be controversial, as each sector would be allocated a portion of the fixed gear cod quota based on their historic averages. Thus, there is a perspective that each sector is receiving an allocation relatively equal to what it has earned in the past. Some hook-and-line vessels are concerned with increased effort from the pot sector eroding their historical shares absent a fixed gear split. Similarly, some pot catcher processors have asserted that the competition between pot catcher vessels and catcher processors inhibits rationalization of the cod fishery, and that separate quotas would make it easier to move in this direction. Other members of the catcher processor sector contend that they should be able to fish when they can get the best price, as opposed to being tied to the catcher vessels' preferences regarding the timing of the fishery.

In another sense, if one sector believes that it can harvest an increased share of the total fixed gear Pacific cod TAC in the future, it may be opposed to the action under consideration. Some participants in the <60' catcher vessel sector have asserted that small vessels were not adequately taken into consideration under the original Amendment 64, meaning that the 1.4% of the overall fixed gear quota does not reflect a 'fair share' of the quota for that segment of the fleet. The original split under Amendment 64 was based closely on the relative catch histories by sector from 1995 - 1998, with an additional provision for a 1.4% allocation to the <60' fleet. This sector had not harvested more than 1% of the total fixed gear share of BSAI Pacific cod in any of the years under consideration, and approximately 0.3% on average during 1995 - 1998. Thus, while some contend that the small boat allocation was more than adequate in that it was more than that sector had historically earned, others assert that it was not sufficient to provide for a growing small boat fleet.

Similarly, some participants in the pot sector may feel disadvantaged by the proposed action because they feel they would otherwise be capable of harvesting more of the fixed gear cod quota if there was no distinct allocation among sectors. In addition, some stakeholders in the pot catcher vessel sector may feel that they are disadvantaged by the proposed action because they would otherwise be capable of harvesting more of the pot cod share of the TAC than they have historically. This trend is evident in that the catcher vessel sector has increased its harvest of the pot cod TAC relative to the pot catcher processor sector in the past few years. However, the notion of this trend continuing is critically dependent on the level of effort in each pot sector fleet in the future. The implementation of the cod endorsements under Amendment 67 (Jan. 1, 2003) directly affects the number of vessels in the pot fleet in each sector, and it is therefore difficult to predict whether either sector would gain a relative advantage if the action was approved due to a substantial number of interim endorsed licenses. Currently, it appears that the endorsed pot catcher processors harvested about 76 percent of the overall pot catcher processor cod catch in 1995 - 1999, and pot catcher vessels harvested 80 percent of the total pot catcher vessel harvest during that time period. Thus, while it appears that the endorsed vessels accounted for the majority of catch in both sectors, it is difficult to assess the level of controversy associated with this action. There has not been substantial written or oral public comment received on this issue to-date, but fairly substantial public comment was received during the June 2003 Council meeting in support of the current (status quo) fixed gear allocations.

5. There are no known **risks to the human environment** associated with establishing a separate BSAI cod quota for the hook-and-line and pot sectors. Because the alternatives under consideration address an allocation of the cod resource and do not change the catch quotas or fishing practices, it is anticipated that there will be no risk to the human environment by taking this action.

6. It is not anticipated that this action would represent a decision in principle about **future consideration** of the fixed gear sector and guide future actions with regard to establishing separate TACs based on catcher categories any more than has been previously considered. The trend in the groundfish fisheries off Alaska has been toward rationalization, and this action is in direct relation to this purpose under Amendment 64 and 67. Amendments 46 and 64 established TAC allocations for different gear sectors of the BSAI Pacific cod fisheries. Neither amendment prevented movement among those sectors or the entrance of new participants who hold an LLP groundfish license with a Bering Sea or Aleutian Islands area endorsement into BSAI Pacific cod fisheries, because these amendments did not require specific species endorsements. This proposed amendment mirrors the type of action that was approved under Amendment 64 and expires December 31, 2003. In April 1999, the Council initiated an analysis of alternatives to add Pacific cod endorsements to LLP groundfish licenses held by fixed gear vessels in the BSAI. Pacific cod endorsements are designed to address the concern about new participants entering the Pacific cod fisheries and movement of Pacific cod fishermen among the various sectors that use non-trawl gear and are ≥60' LOA. As stated in the problem statement, the combination of these actions is intended to promote stability in the BSAI fixed gear cod fishery until comprehensive rationalization is completed.

At the time the Council approved Amendment 64, it acknowledged that a further split among the pot sector may be necessary to stabilize the harvests of pot catcher processors and pot catcher vessels in the BSAI Pacific cod fishery, much like was done for the hook-and-line sector under Amendment 64 and had been done previously for the trawl cod fishery. Because the other gear sectors with allocations in the BSAI cod fisheries have already been split among vessels who operate as catcher processors and catcher vessels, the proposed alternatives in this amendment are not perceived as precedents for future actions, but rather are following a precedent set by previous actions.

7. The proposed action is a resource allocation issue that is limited in scope to the BSAI fixed gear cod fishery and is not expected to have any significant individual or **cumulative effect** on the environment. The alternatives under consideration follow the intent of Amendment 64 and propose to continue or modify the current fixed gear allocations, and potentially also split the BSAI pot share of the cod TAC among pot catcher processors and catcher vessels as a means to provide stability in the fishery while a comprehensive rationalization plan is developed. Thus, this action is directly linked to a previous regulatory action that was approved in 1999 to establish separate apportionments for the gear groups in the BSAI fixed gear cod fishery.

While there is no expected environmental impact, there may be an economic effect as a result of the proposed action in combination with other actions. The fixed gear cod fishery has experienced several policy changes in the past few years and this action, while potentially resulting in a small change individually, may have a larger effect in combination with other recent regulatory actions. The pending implementation of Amendment 67 will directly affect the number of vessels in each sector, making it difficult to predict the exact number of vessels in either sector that would be fishing the allocations should the action be approved (see Section 2.1.2). It likewise makes it difficult to predict whether either sector would gain a relative advantage if the action was approved, not knowing how each sector would fare in the future if they had to compete for one fixed gear TAC.

However, because the qualification criteria approved in Amendment 67 was developed to allow the "core" vessels to qualify for a cod endorsement, it is expected that each sector could continue to harvest their relative historical share of the TAC. During 1995 - 1999 (Alternative 3), hook-and-line catcher processors harvested 81.6% of the total fixed gear cod harvest in the BSAI and hook-and-line catcher

vessels harvested 0.3%. The individual hook-and-line catcher processors that will potentially be 'endorsed' in the long-term to fish BSAI Pacific cod harvested approximately 98% of the total hook-and-line catcher processor harvest during that time period, and the endorsed hook-and-line catcher vessels ≥60', combined with the <60' sector, harvested about 97% of the total hook-and-line catcher vessel harvest. Thus, because the endorsed vessels took the great majority of the overall harvest, the allocations to each hook-and-line sector are virtually identical whether they are determined using the catch history on which the options are based (all participants in 1995-99) or on the subset of vessels that will continue to be eligible to fish BSAI cod in the future.

Relative to the total pot share of the harvest, pot vessels harvested 18.1% of the total fixed gear Pacific cod harvest in 1995 - 1999 (Alternative 3). Catcher processors harvested 24% of the total pot cod harvest and catcher vessels harvested 76%. These percentages equate to allocations of 4.4% of the fixed gear BSAI cod TAC to pot catcher processors and 13.7% to pot catcher vessels, based on the catch histories of all pot vessels participating in the fishery during 1995-99. As mentioned previously, the individual pot catcher processors that will potentially be 'endorsed' in the future to fish BSAI cod also harvested approximately 76% of the total catch harvested by pot catcher processors during this time period, and endorsed pot catcher vessels ≥60' accounted for 80% of the total pot catcher vessel harvest. Overall, all endorsed pot vessels, combined with the <60' harvest, accounted for over 81% of the total pot harvest during 1995 - 99. Thus, the allotments to each pot sector would also be very similar whether they are determined using the catch history on which the options are based (all participants in 1995-99) or on the subset of vessels that will continue to be eligible to fish BSAI cod in the future.

8. There are no known effects on districts, sites, highways, structures, or objects listed or eligible for listing in the **National Register of Historic Places**, nor would the action cause loss or destruction of any significant scientific, cultural, or historical resources. This consideration is not application to this action.

9. NEPA requires NMFS to determine the degree to which an action may affect **threatened or endangered species** under the ESA. There are no known interactions between implementation of the alternatives under consideration and any ESA-listed species. This consideration is detailed in Section 2.2.4.

10. This action poses no known violation of Federal, State, or local laws or requirements for the **protection of the environment.**

11. **No introduction or spread of non-indigenous species** is expected with this action. Continuing or modifying separate Pacific cod allocations to the fixed gear sectors in the BSAI does not affect the location, general timing, or manner in which the participating vessels will fish.

2.4 Cumulative Effects

Cumulative effects are those combined effects on the quality of the human environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what Federal or non-Federal agency or person undertakes such other actions (40 CFR 1508.7, 1508.25(a), and 1508.25(c)). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The concept behind cumulative effects analysis is to capture the total effects of many actions over time that would be missed by evaluating each action individually.

To avoid the piecemeal assessment of environmental impacts, cumulative effects were included in the 1978 Council on Environmental Quality (CEQ) regulations, which led to the development of the CEQs cumulative effects handbook (CEQ 1997) and Federal agency guidelines based on that handbook (e.g., EPA 1999). Although predictions of direct effects of individual proposed actions tend to be more certain, cumulative effects may have important consequences over the long-term. The goal of identifying potential cumulative effects is to provide for informed decisions that consider the total effects (direct, indirect, and cumulative) of alternative management actions.

The potential direct and indirect effects of the alternatives are described in detail in Section 3.0. The alternatives under consideration would continue or modify the regulations which establish separate, direct harvest shares to each fixed gear sector: hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels. The amendment would not affect the level of Pacific cod removals from the BSAI, or the overall share allocated to the fixed gear sector as whole. Because the alternatives under consideration address an allocation of the Pacific cod resource and do not change the TAC or fishing practices, it is anticipated that there will be no risk to the human environment by taking this action.

This action would establish separate allocations for the fixed gear sectors in the BSAI fixed gear fisheries, based on recent catch histories. Thus, the action is expected to have distributional effects, as it would maintain the current relative harvest share of each sector, or modify those shares very slightly. Absent the allocations, it is uncertain how the distribution among the fixed gear sectors would change over time. See Section 3.4.1 for more details on the projected impacts of taking no action on this amendment.

There is not expected to be any significant cumulative effect on the Pacific cod resource as a result of this action, as none of the alternatives change the Pacific cod quotas or manner in which the fisheries operate. The alternatives under consideration were proposed to stabilize the Pacific cod fixed gear fishery by continuing direct allocations to each fixed gear sector according to recent catch histories. This action would potentially continue a previous action under Amendment 64, in which separate allocations were approved for the hook-and-line catcher processors, hook-and-line catcher vessels, pot vessels, and catcher vessels <60'. These allocations were implemented mid-2000 and expire on December 31, 2003. Following this action was the approval and implementation of Amendment 67, effective January 2003, which requires a Pacific cod endorsement to fish BSAI Pacific cod with non-trawl gear on a vessel greater than 60'. Amendment 67 limits entry into the fishery based on participation criteria from 1995 - 1999, with the intent to protect those with long-term participation and extensive catch histories from those with limited history who wish to increase their Pacific cod harvest. Thus, both actions in combination are steps toward comprehensive rationalization. Amendment 77 would continue separate allocations among the fixed gear sectors, as part of the effort to protect each sectors' relative share of the historical harvest of Pacific cod.

2.5 Conclusions

With regard to environmental impacts, none of the alternatives under consideration would affect the prosecution of the BSAI cod fisheries in a way not previously considered. The proposed Alternatives 2 and 3 are designed to continue and/or modify distinct quotas for the hook-and-line catcher processor, hook-and-line catcher vessel, pot and hook-and-line catcher vessel <60', and pot sector, in order to establish allocations that conform to the historical distribution among those sectors. In addition, one

alternative (Alternative 4) would further split the pot share of the BSAI fixed gear quota, in order to create distinct quotas for the pot catcher processor and pot catcher vessel sectors, based on the historical distribution between those sectors. This action would not change the species TACs, the overall amount of cod available to the fixed gear sector, the gear type or general location of the fishery, or the manner in which the species are fished. Splitting the fixed gear cod quota among the sectors is not expected to affect takes of listed species. Overall, none of the alternatives are expected to have significant environmental impacts.

3.0 REGULATORY IMPACT REVIEW: ECONOMIC IMPACTS OF THE ALTERNATIVES

This chapter provides information on the economic and socioeconomic impacts of the alternatives, as required under Executive Order 12866 (E.O. 12866). This chapter includes a description of the purpose and need for the action and the management objectives, a description of the alternatives proposed to meet those objectives, identification of the individuals or groups that may be affected by the action, the nature of these impacts (quantifying the economic impacts wherever possible), and discussion of the tradeoffs between benefits and costs. The economic impacts of the alternatives under consideration are summarized in Section 3.4.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.*

This section addresses the requirements of E.O. 12866 to provide adequate information to determine whether an action is "significant" under E.O. 12866. The order requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." A "significant regulatory action" is one that is likely to:

> (1) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
>
> (2) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
>
> (3) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
>
> (4) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

3.1 Purpose and Need for the Action

Beginning in 1997, Amendment 46 allocated the total allowable catch (TAC) for BSAI Pacific cod among jig gear (2%), trawl gear (47%), and fixed gear (51%). The trawl apportionment was split between catcher vessels and catcher processors 50/50, but no split was adopted among the longline and pot vessels in the fixed gear cod fishery.

Vessels began fishing in Federal waters off Alaska under the License Limitation Program (LLP) on January 1, 2000. Since the LLP was approved by the Council, changes in the fixed gear fisheries prompted industry to petition the Council to further allocate cod in the BSAI among the various sectors of the fixed gear fleets. Amendment 64 was initially reviewed by the Council in April 1999 and adopted at the October 1999 meeting. The fixed gear Pacific cod apportionments under Amendment 64 are currently as follows:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 18.3% pot vessels
- 1.4% hook-and-line and pot catcher vessels <60' in length

These percentages fairly closely represent harvests in this fishery over the period 1995-1998, with an additional allocation for catcher vessels <60' LOA. Amendment 64 was approved by the Secretary in July 2000, and was implemented by final rule on August 24, 2000 (65 FR 51553). The BSAI Pacific cod fixed gear allocations and revised final 2000 harvest specifications under Amendment 64 became effective on September 1, 2000. Amendment 64 will sunset on December 31, 2003, necessitating approval of a new plan amendment to either continue or modify the Pacific cod apportionments among the fixed gear sectors. This EA/RIR/IRFA represents a new plan amendment (BSAI FMP Amendment 77) to address this issue.

At the time the Council originally approved Amendment 64, it acknowledged that a further split among the pot sector may be necessary to stabilize the harvests of pot catcher processors and pot catcher vessels in the BSAI Pacific cod fishery. Concern was expressed that the pot sector needed the stability of direct allocations based on the mode of operation, much like was done for the hook-and-line catcher processors and catcher vessels under Amendment 64. However, because the public had not been noticed that this action may be taken under Amendment 64, the Council decided to delay action specific to the pot sector and include the proposal in a follow-up amendment (BSAI Amendment 68).

Subsequent to the decision on Amendment 64, the Council initiated a proposed amendment to apportion the pot gear share of the BSAI Pacific cod TAC between pot catcher processors and pot catcher vessels. Amendment 68 would have further split the current 18.3% of the fixed gear Pacific cod TAC allocated to pot gear according to recent catch histories from 1995 - 1999. The Council reviewed the analysis for Amendment 68 in June 2002 and decided to take no action on the amendment at that time, partly due to the potential implications of the Pacific cod endorsement required under BSAI Amendment 67 which became effective January 1, 2003. The Council also noted the pending expiration of BSAI Amendment 64 and decided to defer action and consider the allocations to all fixed gears sectors within the new amendment package. Thus, this current analysis for Amendment 77 includes alternatives to split the fixed gear share of the BSAI Pacific cod TAC among hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels.

Further changes to the BSAI cod fishery occurred in April 2000 when the Council approved BSAI FMP Amendment 67. Amendment 67 requires that fixed gear vessels ≥60' participating in the BSAI Pacific cod fishery must qualify for a Pacific cod endorsement, which would be part of the participant's License Limitation Program (LLP) license. Eligibility for a cod endorsement is based on past participation in the BSAI fixed gear fisheries during specific combinations of the years 1995-1999. Four different endorsements will be available, depending on the gear used to harvest cod (hook-and-line or pot) and

whether the cod was processed on board the harvesting vessel (catcher vessel or catcher processor). Amendment 67 exempts catcher vessels less than 60 feet LOA from the requirement to have a cod endorsement to participate in the BSAI fixed gear cod fisheries. Amendment 67 effectively granted exclusive access to longtime participants in the BSAI fixed gear cod fishery, and thus reduced the number of allowable participants, including the number of eligible pot vessels. This amendment was approved by the Secretary on November 14, 2001, and became effective January 1, 2003.

Proposed BSAI Amendment 77, with the exception of the alternative to split the pot share of the BSAI Pacific cod TAC, does not include any other fundamentally different alternatives than were considered under the original Amendment 64. While the availability of more recent data has spurred the inclusion of new options for determining the split among the fixed gear sectors, the basic alternatives remain the same. This proposal will not affect the jig or trawl apportionment of BSAI Pacific cod, nor does it affect the overall BSAI Pacific cod TAC.

Problem Statement

Amendment 77 proposes implementing separate allocations to hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, and pot catcher vessels. In essence, this action would further split the 51% of the BSAI Pacific cod TAC allocated to fixed gear vessels among the above sectors based on recent catch histories. This amendment would continue or amend the allocations approved by the Council in October 1999 and implemented mid-2000. This amendment is necessary to continue the fixed gear allocations, as the original amendment implementing those allocations is scheduled to expire on December 31, 2003.

Similar to the original action, Amendment 77 is intended to respond to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by recent increases in the market value of cod products. While participants in the BSAI fixed gear Pacific cod fishery include longline and pot fishermen with extensive catch histories, absent a gear split, there is no mechanism that would prevent one sector from increasing its effort in the fishery and eroding another sector's relative historical share. Because Amendment 77 includes an alternative that would also split the pot share of the TAC among pot catcher processors and pot catcher vessels, both issues are addressed in two separate problem statements guiding analysis of this proposed action.

The first problem statement was developed in response to the expiration of the fixed gear allocations under Amendment 64. Amendment 77, which proposes to continue Pacific cod allocations among the fixed gear sectors, speaks to protecting the relative historical catch distribution among the fixed gear sectors by apportioning the TAC accordingly; it does not propose alternatives to limit the number of individual vessels entering the fishery. (Limiting individual vessel participation in the fixed gear cod fishery is not addressed in this amendment package. That issue is addressed under BSAI Amendment 67 which requires a BSAI Pacific cod endorsement.) Thus, the first problem statement is applicable to Alternatives 1- 3, which address the overall fixed gear allocations. The second problem statement was developed in response to the concern that the pot catcher processor sector's historical harvest share is being eroded by the pot catcher vessel sector. Thus, the second problem statement is applicable to Alternative 4, which proposes to split the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to recent catch histories. The two complete Council problem statements for Amendment 77, approved in December 2002, are included below.

Problem Statements for proposed Amendment 77 to the BSAI FMP

Problem Statement 1: Overall fixed gear allocations (Applicable to Alternatives 1 -3, formerly under Amendment 64)

The fixed gear fisheries for Pacific cod in the BSAI are fully utilized. The fishermen who hold licenses in the BSAI Pacific cod fisheries have made substantial investments and are significantly dependent on BSAI Pacific cod.

The longline and pot gear allocations currently in place for the BSAI Pacific cod fishery under Amendment 64 expire December 31, 2003. Without action by the North Pacific Fishery Management Council, serious disruption to the BSAI Pacific cod fixed gear fisheries will occur. Prompt action is required to maintain stability in the BSAI fixed gear Pacific cod fishery until comprehensive rationalization is completed.

Problem Statement 2: Separate allocations for pot catcher processors and pot catcher vessels: (Applicable to Alternative 4, formerly under Amendment 68)

The catcher processor and catcher vessel pot fisheries for Pacific cod in the Bering Sea/Aleutian Islands are fully utilized. Pot catcher processors who have made significant long-term investments, have long catch histories, and are significantly dependent on the BSAI cod fisheries need protection from pot catcher vessels who want to increase their Pacific cod harvest. This requires prompt action to promote stability in the BSAI pot cod fishery until comprehensive rationalization is completed.

The problem statements reflect an identified need to provide for separate, direct allocations of BSAI Pacific cod to each fixed gear sector, to ensure the catch distribution that has historically occurred among the sectors. Increased prices for Pacific cod, reduced crab guideline harvest levels, and shortened or canceled crab seasons due to low resource abundance have resulted in increased harvests of Pacific cod by vessels using pot gear. Fishermen that are displaced from the crab fisheries have expressed ongoing interest in fishing for Pacific cod, spurring concerns by long-term Pacific cod fishermen about erosion of their gear harvest shares in the cod fishery in favor of vessels using pot gear that have very limited or no historical participation in the fishery. While some of the concern about pot fishermen with little historical participation entering the cod fishery is ameliorated under Amendment 67, other sectors of the fishery contend there are enough remaining participants to necessitate a fixed gear split. Both longline and pot cod fishermen have expressed concern with the pending expiration of the fixed gear allocations under Amendment 64, and the potential for serious disruption to the fishery if no gear allocations are in place for the 2004 cod season.

Without direct Pacific cod allocations, the concern is that increased competition for the cod resource may cause one sector to encroach on another sector's historical harvest level. At the same time, there is a concern that absent a pot split, the pot catcher vessel harvest may encroach on the pot catcher processors' historic harvest level. This effort to constrain and protect the harvest distribution among the fixed gear sectors is intended as a step toward comprehensive rationalization.

3.2 Description of the Alternatives

3.2.1 Alternative 1: No action

Under Alternative 1, the BSAI Pacific cod allocations for the fixed gear sectors (hook-and-line catcher processors, hook-and-line catcher vessels, pot vessels, and hook-and-line and pot vessels <60') under Amendment 64 would expire on December 31, 2003. The result would be that, starting in 2004, each vessel operator in the fixed gear sectors would compete in a wide open, inefficient race-for-fish, seeking the largest possible individual share of the BSAI Pacific cod TAC (51%) allocated to vessels using hook-and-line and pot gear.

3.2.2 Alternative 2: Status quo

Under Alternative 2, the current BSAI Pacific cod allocations among the fixed gear sectors (as originally determined under Amendment 64) would continue:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels <60'
- 18.3% pot vessels

These allocations relate closely to catch histories during 1995-1998, with an additional provision for vessels <60' LOA, excluding any quota reallocated from other (trawl and jig) sectors. These allocations do not match the relative historical catch distributions exactly, primarily because of the 1.4% allocated to vessels <60'. That allocation was 'funded' by a reduction in the hook-and-line catcher processor allocation, and represented about a five-fold increase in the allocation to vessels <60' relative to their actual harvest during the time period. Under this alternative, harvests by pot and/or longline catcher vessels <60' would only accrue against the 1.4% allocation when the Pacific cod fisheries for all vessels using pot gear or catcher vessels using hook-and-line gear, respectively, are closed, (i.e., when the pot fleet and hook-and-line catcher vessel fleet cannot fish their 18.3 percent and 0.3 percent set-asides, respectively.) Accounting for the harvest of the <60' vessels in that way potentially allows them to harvest substantially more than the 1.4% they are allocated.

The following three options and several suboptions are also under consideration under Alternative 2. These options are provided to address BSAI Pacific cod quota reallocated to and within the fixed gear sectors.

Rollover Options

Option 1: (Status quo) Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: (Status quo) Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

Options 1 and 2 for determining rollovers were part of the original Amendment 64, and thus selection of both of those options would mirror the reallocation scheme in place for the BSAI Pacific cod fisheries from mid- 2000 to 2003. Recall that the 95% - 5% split between the hook-and-line catcher processor and pot sectors (Option 2) was based on the actual harvest of reallocated quota from 1996 - 1998. However, inclusion of 1999 harvest data would not change the 95 - 5% split.

Option 3 was not part of the original Amendment 64 and was added to the alternatives under consideration by the Council in response to testimony by the public describing the need to increase the harvest share available to the less than 60' fixed gear fleet. Option 3 proposes to apportion the jig sector's allocation on a quarterly or trimester basis, such that quota that is projected to remain unused shall be reallocated to <60' vessels using hook-and-line or pot gear. The 2% jig allocation has not been fully utilized by the jig sector since it was implemented, and under Amendment 64, the majority (95%) of the reallocated quota has been to the hook-and-line catcher processors. Option 3, while preserving the overall jig allocation of 2% of the BSAI Pacific cod TAC, proposes to redistribute any reallocated quota on a seasonal basis to the <60' fixed gear fleet.

Finally, Alternative 2 provides two options regarding a sunset date associated with the action taken under this amendment package:

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

3.2.3 Alternative 3: Modified status quo

Alternative 3 would modify the current BSAI Pacific cod allocations among the fixed gear sectors according to catch histories to be determined as a percentage of cumulative catches of BSAI Pacific cod by gear type for 1995 - 1999. This alternative differs from Alternative 2 in that it includes 1999 data to determine the split among the fixed gear sectors. Recall that under Alternative 2, the split was based closely on catch histories from 1995 - 1998, or 1996 - 1998, but not exactly. At the time the analysis for Am. 64 was developed, 1999 data was considered preliminary. Thus, including 1999 allows use of the most recent data available prior to the allocation decision under Amendment 64. As the allocations under Am. 64 were implemented in mid-2000, using catch history from 2000 or 2001 would be similar to maintaining the existing allocations.

Also included under Alternative 3 is an option to continue the 1.4% allocation to catcher vessels <60', regardless of whether their actual catch history is 1.4% of the 1995-1999 fixed gear BSAI Pacific cod

harvest. However, this option would fund the 1.4% allocation from all sectors instead of solely from the hook-and-line catcher processor sector's historic catch, as was done under Amendment 64:

Option 1: Include a 1.4% allocation to pot and hook-and-line catcher vessels <60', to be subtracted from the overall fixed gear allocation before the split is made.

The same options and suboptions for addressing how to reallocate unused quota among the fixed gear sectors under Alternative 2 are included under Alternative 3:

Rollover Options

Option 1: (Status quo) Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: (Status quo) Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

Finally, Alternative 3 also provides the same two options for sunsetting the action taken under this amendment package as Alternative 2:

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

3.2.4 Alternative 4: Pot split (applicable only in combination with Alternatives 2 or 3)

Alternative 4 would apportion the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories to be determined as a percentage of cumulative catches of the BSAI Pacific cod TAC by pot sector for:

Option 1:	1995 - 1999
Option 2:	1996 - 2001
Option 3:	1998 - 2001
Option 4:	2000, 2001

As this alternative only addresses a split among the pot share of the BSAI Pacific cod TAC, it may only be selected in conjunction with an alternative which makes separate allocations among longline and pot vessels (Alternative 2 or 3). Meaning, one must select Alternative 2 or Alternative 3 to create a distinct pot share of the BSAI Pacific cod TAC in order to split the pot share as proposed under Alternative 4. Any options selected under Alternative 2 or 3 with regard to rollovers or sunset provisions would continue to apply if Alternative 4 was selected as part of the preferred alternative.

Options 1 through 4 use combinations of catch histories from 1995 -2001, excluding catch that was reallocated from other gear sectors. Should a separate allocation for hook-and-line and pot vessels <60' be part of the preferred alternative, Alternative 4 would not affect that allocation. This alternative proposes only to split the pot vessel allocation between pot catcher processors and pot catcher vessels.

Alternative 4 also includes two suboptions to provide direction on how reallocated quota should be apportioned should either of the pot sectors in the BSAI Pacific cod fishery be unable to harvest its entire allocation in a given year:

Suboption: Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused by a specified date shall be reallocated as follows:

a) Unused quota from either pot sector would be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors.

b) Unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessel sector before it is reallocated to the pot catcher processor sector.

Without explicit direction on either suboption, NMFS would likely address the rollovers as is currently done for the hook-and-line cod fisheries, which is similar to Suboption a. Currently (under Alternative 2) any amount of BSAI Pacific cod annually allocated to the hook-and-line catcher vessels or vessels <60' that is projected to remain unharvested is reallocated to the hook-and-line catcher processor fleet in September.

Recall also that under Alternative 2 or 3, Option 2 would allow the pot sector to receive 5% of the total quota reallocated from the jig and trawl sectors in a given year. The analysis presents information showing the amount of reallocated quota utilized by the pot catcher processor and pot catcher vessel sectors but does not propose alternatives to further split the 5% of reallocated quota further between the sectors. The pot sector typically harvests a relatively small portion of the reallocated quota (<5% since 1999), primarily because of the timing of the reallocation.

3.3 Description of the Pacific cod Fishery

Table 3.1: Catch (mt) of Pacific cod in the BSAI by gear type, 1985-2001

Year	Trawl	Longline	Pot	Jig	Total
1985	51,885	50	0	0	51,935
1986	38,430	49	63	0	38,542
1987	48,701	1,417	89	0	50,207
1988	95,404	2,611	329	0	98,344
1989	123,864	14,219	164	0	138,247
1990	122,425	47,716	1,389	0	171,530
1991	131,684	79,696	6,673	0	218,053
1992	90,264	101,249	13,681	117	205,311
1993	99,074	66,153	2,098	35	167,360
1994	100,542	87,138	8,254	730	196,664
1995	121,349	102,939	20,248	599	245,135
1996	113,089	94,701	32,617	267	240,674
1997	111,273	124,159	22,068	262	257,762
1998	81,903	99,921	13,632	192	195,648
1999	68,339	89,337	16,150	169	173,995
2000	53,815	97,823	18,783	71	191,056
2001	50,752	96,874	16,507	71	164,204
2002	77,731	89,804	14,878	164	182,577

* Preliminary data from weekly production and observer reports through December 31, 2002. Data (round weights) includes both retained and discarded catch.

The most recent descriptions of the Pacific cod fixed gear fishery are contained in the Economic Status of the Groundfish Fisheries Off Alaska, Appendix D of the Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions (Hiatt 2002) and the Draft Programmatic SEIS (NMFS 2001a). The SAFE document includes information on the catch and revenues from the fisheries, the numbers and sizes of fishing vessels and processing plants, and other economic variables that describe or relate to the performance of the fisheries. Sections 2.1.6 - 2.1.9 of the DPSEIS (Appendix I) describe the characteristics and activities of pot and longline catcher vessels of various lengths operating in the BSAI, and Sections 2.2.4 and 2.2.5 provide the same general information for pot catcher processors and longline catcher processors, respectively. In addition to reporting the catch and revenues from the BSAI Pacific cod fishery by fixed gear vessels, that document contains detailed information on the owners by region of residence, the annual cycle of operations and dependence on the groundfish fisheries, and crew employment. Please see these documents for further details on the Pacific cod fishery in the BSAI.

The Pacific cod stock is targeted by multiple gear types, principally by trawls and hook-and-line catcher processors, and smaller amounts by hook-and-line catcher vessels, jig, and pot gear. A history of Pacific cod catch in domestic fisheries is shown in Table 3.1. Catches from foreign trawl and hook-and-line vessels (through 1987) and joint venture trawling (1980-1990) are not included in the table. Trawl landings ranged from 82,000 mt to132,000 mt per year since the late 1980s; PSC halibut limits and later allocation decisions prohibited additional cod from being taken with trawl gear. Harvests from fixed gear vessels increased as these fisheries developed. Longline catch greatly increased from 1988 (2,611 mt) through 1995 (102,939 mt) and has since fluctuated around 95,000 mt. Vessels using pot gear began to make significant landings in 1990 (1,389 mt), increasing to a high of 32,617 mt in 1996.

Hook-and-line harvested cod are mostly taken along the slope of the continental shelf break and along the Aleutian Islands (NMFS 2001a). The pot gear fisheries for Pacific cod have also concentrated along the slope and the north side of Unalaska Island, Unimak Island and Unimak pass, with some relatively minor effort adjacent to the Aleutian Islands (Fritz et al. 1998). The following figures indicate the observed Pacific cod fishing effort by hook-and-line and pot gear during 1990 - 2002.

Figure 2.1 Bering Sea: 1990-2002 Observed Pacific cod Hook & Line Fishing Effort

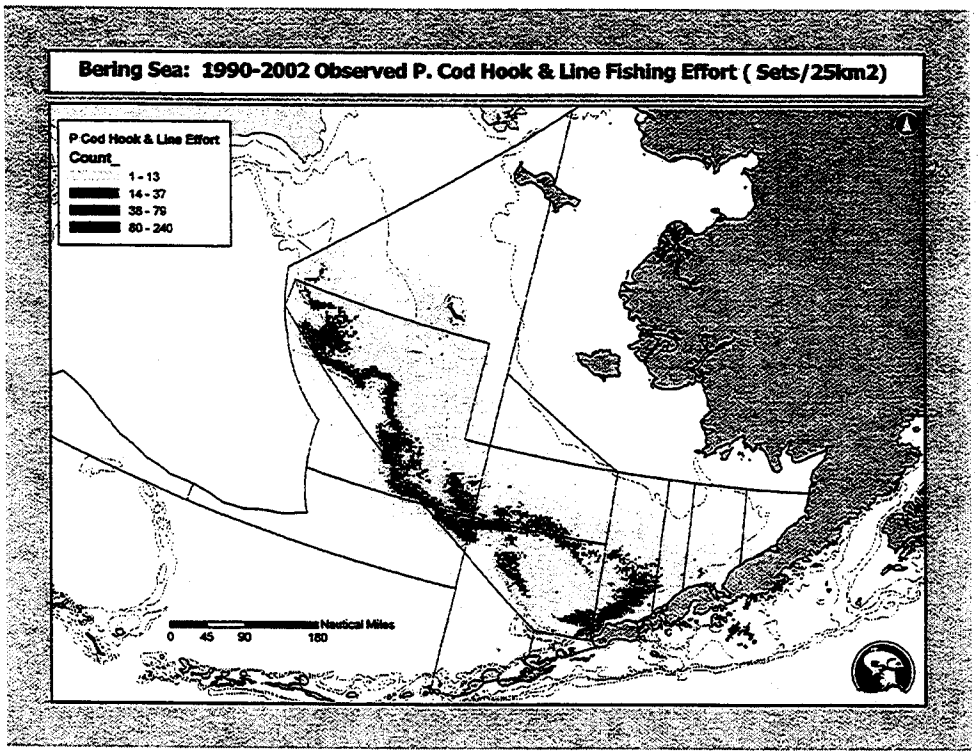
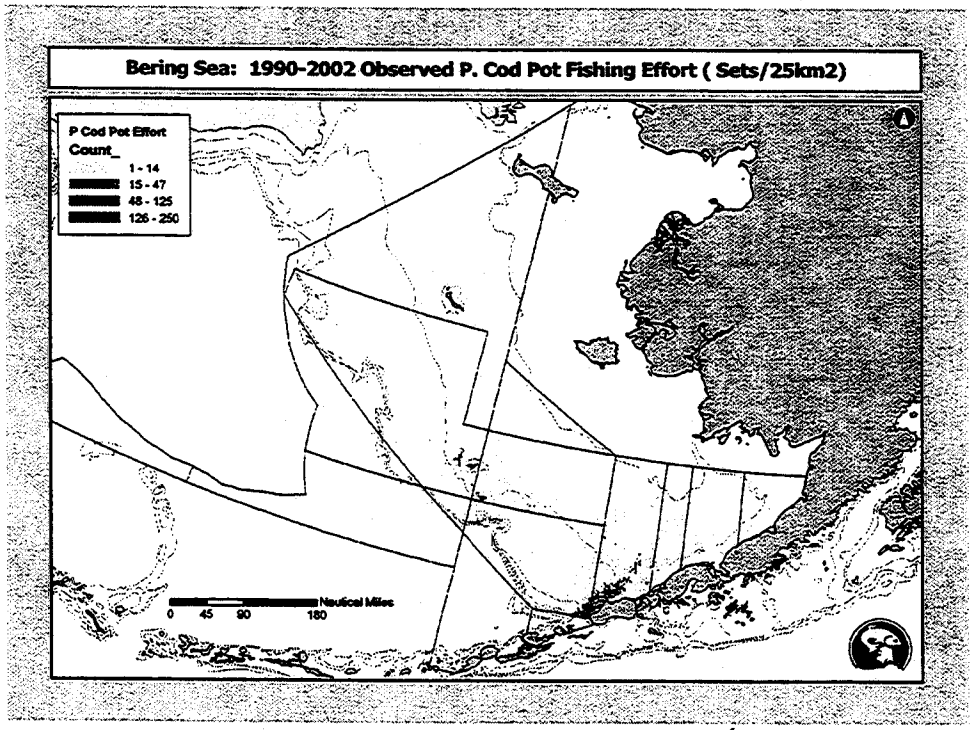


Figure 2.2 Bering Sea: 1990-2002 Observed Pacific cod Pot Fishing Effort



As stated previously, the BSAI Pacific cod TAC is currently allocated 2 percent to jig gear, 51 percent to fixed gear, and 47 percent to trawl gear. Under Amendment 64, 80 percent of the fixed gear apportionment is reserved for hook-and-line catcher processor vessels, 18.3 percent for pot vessels, 0.3 percent for hook-and-line catcher vessels, and 1.4 percent for fixed gear catcher vessels less than 60' length overall. Amendment 24 regulations allow seasonal apportionment of the Pacific cod TAC allocated to vessels using hook-and-line or pot gear. Seasonal apportionments are currently divided among two seasons and established through the annual specifications process. Both hook-and-line sectors currently have specified seasonal apportionments as follows: the A season (60%) is Jan. 1 - June 10 and the B season (40%) is June 10 - Dec. 31. Any unused portion of a seasonal Pacific cod allowance is reapportioned to the next seasonal allowance, providing there is halibut bycatch allowance remaining. There is no halibut bycatch allowance provided for hook-and-line vessels from June 10 - August 15, thus the second Pacific cod season for the longline sector essentially starts in mid-August. The jig fishery is also apportioned 60% to the A season (Jan. 1 - June 10) and 40% to the B season (June 10 - Dec. 31). Any unused Pacific cod TAC from the jig or trawl gear fishery becomes available to the pot sector and the hook-and-line catcher processors in the fall by regulation, usually sometime in mid-September or October.

Seasonal apportionments for the BSAI pot cod sector were first established in 2001 under an emergency rule to address Steller sea lion protection measures. Pot catcher processors and pot catcher vessels ≥60' are apportioned 60% of the overall pot allocation in the first (A) season: January 1 - June 10, and the remaining 40% in the second (B) season: August 15 - December 31. In 2002, under management measures provided for in the Steller Sea Lion SEIS (NMFS 2001c), the fall season was changed to September 1 - December 31. Any unused portion of a seasonal Pacific cod allowance is reapportioned to the next seasonal allowance. No seasonal harvest constraints are imposed on the catcher vessels <60' in the BSAI cod fishery.

3.3.1 History of Pacific cod allocations

Allocations of the BSAI Pacific cod TAC among gear types began in 1993. Amendment 24 to the BSAI FMP, effective in February 1994, established an explicit allocation of the Pacific cod TAC between gear types.[7] The percentage allocations for the 1994, 1995, and 1996 fishing seasons were: trawl gear - 54 percent, fixed gear - 44 percent, and jig gear - 2 percent. These percentages roughly represented the 1993 harvest percentages of the two major sectors, trawl and hook-and-line, while allocating 2 percent to jig gear specifically. The 2 percent allocation to jig gear was more than was being taken by that gear type, but was designed to allow for some growth in that sector. At that time, the Council was in the initial stages of developing its Comprehensive Rationalization Plan (CRP), and the allocations established under **Amendment 24** were consistent with the 1993 **problem statement** shown below, which emphasized the allocation as a stabilizing mechanism and bridge to overall comprehensive rationalization:

> *The Bering Sea/Aleutian Islands Pacific cod fishery, through overcapitalized open access management exhibits numerous problems which include: compressed fishing seasons, periods of high bycatch, waste of resource, gear conflicts and an overall*

[7] Amendment 24 was adopted by the Council in June 1993. NMFS published a proposed rule to implement Amendment 24 on October 27, 1993 (58 FR 57803). The final rule was published on January 28, 1994 (59 Notice 4009). Effective date of implementation was February 28, 1994.

reduction in benefit from the fishery. The objective of this amendment is to provide a bridge to comprehensive rationalization. It should provide a measure of stability to the fishery while allowing various components of the industry to optimize their utilization of the resource.

Because the Amendment 24 Pacific cod allocations were scheduled to expire at the end of 1996, the Council placed discussion of this issue on the December 1995 meeting agenda, with the intent that an amendment be prepared to allow an allocation beyond 1996. At the December 1995 meeting, members of the Council identified changes which had taken place in the Pacific cod fishery since Amendment 24 went into effect in 1994. These changes were viewed as biological, economic, and regulatory in nature. In order to respond to these changes, staff was asked to incorporate these changes in the analysis, with specific focus on PSC mortality, impacts on habitat, and discards of Pacific cod by various industry sectors, under a range of possible percentage allocations to each gear type, which would be in place for another three years, through 1999. Though basic percentages were explicitly identified, the Council could choose an allocation percentage which was not explicitly identified, but is within that range. Further, the Council also requested that the analysis examine the sub-alternatives of further dividing the trawl sector allocation between catcher and catcher processor vessels in the Pacific cod fisheries. The range of that allocation was 60/40 and 40/60. In developing these alternatives, the Council also developed the following **problem statement** with regard to those allocation proposals proposed under **Amendment 46**:

The Bering Sea/Aleutian Islands Pacific cod fishery continues to manifest many of the problems that led the NPFMC to adopt Amendment 24 in 1993. These problems include compressed fishing seasons, periods of high bycatch, waste of resource, and new entrants competing for the resource due to crossovers allowed under the NPFMC's Moratorium Program. Since the apportionment of BSAI cod TAC between fixed gear, jig, and trawl gear was implemented on January 1, 1994, when Amendment 24 went into effect, the trawl, jig, and fixed gear components have harvested the TAC with demonstrably differing levels of PSC mortality, discards, and bycatch of non-target species. Management measures are needed to ensure that the cod TAC is harvested in a manner which reduces discards in the target fisheries, reduces PSC mortality, reduces non-target bycatch of cod and other groundfish species, takes into account the social and economic aspects of variable allocations and addresses impacts of the fishery on habitat. In addition, the amendment will continue to promote stability in the fishery as the NPFMC continues on the path towards comprehensive rationalization.

At the June 1996 meeting, the Council adopted Amendment 46 to continue allocations of Pacific cod TAC. The Council essentially approved an agreement negotiated by affected industry groups allocating Pacific cod in the BSAI. Under the agreement, 51 percent of the Pacific cod TAC was allocated to fixed gear, 47 percent to trawl gear and 2 percent to jig gear. Amendment 46 went into effect beginning in 1997. The specific provisions of Amendment 46 as approved are shown in the box below.

Amendment 46: Pacific Cod Allocations in the Bering Sea and Aleutian Islands
(implemented in 1997; no sunset date)

1) TAC Apportionments:
The trawl sector will be allocated 47% of the BSAI Pacific cod TAC. The trawl apportionment will be split between catcher vessels and catcher processors 50/50.

The fixed gear sector will be allocated 51% of the BSAI Pacific cod TAC.

The jig gear sector will be allocated 2% of the BSAI Pacific cod TAC.

2) Roll-overs:
On September 15 of each year, the Regional Director shall reallocate 100% of any projected unused amount of the Pacific cod allocated to jig vessels to the fixed gear vessels.

If, during a fishing year, the Regional Director determines that vessels using trawl gear or hook-and-line or pot gear will not be able to harvest the entire amount of Pacific cod allocated to those vessels, then NMFS shall reallocate the projected unused amount of Pacific cod to vessels using the other gear type(s).

3) Halibut PSC Mortality Caps:
The trawl halibut PSC mortality cap for Pacific cod will be no greater than 1,600 mt. The hook-and-line gear halibut PSC mortality cap for Pacific cod will be no greater than 900 mt.

4) Review:
There is no sunset provision, but the Council will review this agreement in four years following the date of implementation.

Following the allocation of the BSAI Pacific cod TAC among fixed, trawl, and jig gear in 1996, the Council initiated an analysis to examine allocations of BSAI Pacific cod among the various sectors of the fixed gear fleet. This action was proposed to promote stability in the fully utilized BSAI fixed gear cod fishery until comprehensive rationalization is completed. Amendment 64, which further split the Pacific cod fixed gear allocation between hook-and-line catcher processors, hook-and-line catcher vessels, and pot vessels, was brought to the Council for initial review in June 1999 and adopted at the October 1999 meeting. In July 2000, the Secretary approved the Council's preferred alternative to allocate Pacific cod among the fixed gear sectors in the BSAI as shown in the box below.

BSAI Amendment 64: BSAI Pacific cod Allocations among the Fixed Gear Sectors
(implemented in Sept. 2000; sunsets Dec. 31, 2003)

TAC Apportionments
The fixed gear share of the BSAI Pacific cod TAC is allocated among the fixed gear sectors as follows:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels under 60'
- 18.3% pot vessels

Bycatch of Pacific cod in other fixed gear fisheries will be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set. Harvests by pot and/or hook-and-line catcher vessels <60' LOA only accrue against the 1.4% allocation when the Pacific cod fishery for all vessels using pot gear or catcher vessels using hook-and-line gear, respectively, are closed, (i.e., when the pot fleet and hook-and-line catcher vessel fleet cannot fish their 18.3 percent and 0.3 percent set-asides, respectively.) The intent is for this action to be implemented January 1, 2004, upon expiration of BSAI Amendment 64.

Rollovers
Any unharvested portion of the catcher vessel hook-and-line and the under 60' pot and hook-and-line vessel quota that is projected to remain unused will be reallocated to the hook-and-line catcher processors in September.

Any unused jig or trawl quota will be apportioned among the hook-and-line catcher processor and pot sectors according to the actual harvest of rollovers from 1996-98.

Sunset
The fixed gear Pacific cod allocation set forth in Amendment 64 sunsets on December 31, 2003.

At the same time the Council initiated the analysis for Amendment 64, an analysis was initiated to support a follow-up amendment (**BSAI Amendment 67**) to add a Pacific cod endorsement to licenses held by fixed gear vessels ≥60' that qualify for a BSAI endorsement under the current LLP and meet specified qualification criteria. In April 2000, the Council defined qualification criteria for hook-and-line catcher processors, hook-and-line catcher vessels ≥60', pot catcher processors and pot catcher vessels ≥60' (see box below). In addition, the Council recommended that vessels <60' would not be required to have a cod endorsement to participate in the BSAI cod fishery. Because the Pacific cod endorsement is added to a vessel's Federal LLP license, the resulting number of vessels in each sector that qualify under the endorsement criteria depends on the number of vessels that also hold an LLP license. The requirement for a cod endorsement was effective January 1, 2003. Until the NMFS appeals process is complete regarding both LLP licenses and cod endorsements, the number of ≥60' vessels that qualify to fish BSAI Pacific cod with hook-and-line or pot gear is not final.

Required catch history to earn a Pacific cod endorsement under **Amendment 67** is defined as follows:

I. Freezer longliners must have made at least 270 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one of the years 1996, 1997, 1998, or 1999.

II. Longline catcher vessels ≥60' must have made at least 7.5 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one year 1995, 1996, 1997, 1998, or 1999.

III. Pot catcher processors must have made at least 300,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995, 1996, 1997, or 1998.

IV. Pot catcher vessels ≥60' must have made over 100,000 lb of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995, 1996, 1997, 1998 or 1999.

V. Jig landings of Pacific cod count toward the qualification requirements for pot catcher vessels and hook-and-line catcher vessels.

A review of fishtickets and Blend data (by NPFMC staff, as of February 2003) shows that currently 6 pot catcher processors, 40 hook-and-line catcher processors, 57 pot catcher vessels ≥60', and 9 hook-and-line catcher vessels ≥60' appear to qualify for a BSAI Pacific cod endorsement on their LLP license[8] (see Table 3.2). In the case that a vessel owner appeals their (lack of) cod endorsement status, RAM Division must issue an 'interim' license until a final agency determination is made. Thus, the RAM Division has issued (as of April 2003) 41 cod endorsements in excess of the number that staff has identified above: 11 pot catcher processor, 48 hook-and-line catcher processor, 82 pot catcher vessel, and 12 hook-and-line catcher vessel endorsements.[9] This results in 153 endorsements issued to 138 individual vessels (12 vessels have or claim multiple endorsements).[10]

[8]Three of the 57 qualified pot catcher vessels are pot catcher processors that only met the catcher vessel qualifications. Six of the 9 qualified longline catcher vessels are longline catcher processors that only met the catcher vessel qualifications. These vessels would only be allowed to harvest from the 0.3% of the BSAI cod quota allocated to the longline catcher vessel fleet.

[9]These numbers reflect the state of RAM's current Amendment 67 determinations as of 4/14/03; note that RAM determinations may be appealed, so the endorsements (or lack thereof) maintained at this time may change. Non-transferable (interim) licenses will be issued in the case that an applicant has made claims that differ from the "NMFS Official LLP Record." This status may be due to Amendment 67 claims, or to claims related to any other license endorsements or designations.

[10]Vessels that qualified for a cod endorsement using both hook-and-line and pot gear will receive both endorsements on their license. However, one license cannot hold more than one endorsement for the same gear type (e.g., the same license cannot hold an endorsement for both a hook-and-line catcher processor and a hook-and-line catcher vessel.) The vessel receives the 'highest' gear endorsement for which it qualifies.

Several of the endorsements issued by RAM to-date are under appeal and thus, the licenses are designated 'interim'. Of the 138 individual vessel licenses with one or more cod endorsements, 46 of those vessels have interim licenses and the remaining 92 have transferable licenses. Of those 46 with interim licenses, six are being appealed on the basis of their Gulf of Alaska area endorsement, and not any other part of the license (non-trawl, BS/AI, cod endorsement, or general qualification). Thus, a better estimate of the current status of the RAM list is about 98 licenses that will remain eligible to fish BSAI Pacific cod in the long-term, and 40 interim licenses, the status of which is uncertain but may result in these vessel not being eligible to fish BSAI Pacific cod in the future.

The RAM list, which includes both transferable and interim licenses, identifies the number of fixed gear vessels that are eligible to fish BSAI Pacific cod in 2003. However, in the *long-term*, staff believes that the numbers will be closer to those identified by our analysis of recent catch histories. Since the action under Amendment 67 is considered a long-term program, staff used its (lower) qualifying numbers for the purpose of this analysis. The number of eligible vessels will be certain once a final agency determination is made on each appeal. Recall also that the total effort in the catcher vessel sectors will be influenced by the level of participation in the <60' fleet, which was not restricted by Amendment 67.

Amendment 64 also establishes a set-aside for vessels <60' of 1.4% of the fixed gear Pacific cod TAC. In selecting the no action alternative for vessels <60' under Amendment 67, the Council wanted to ensure that this small vessel class would be large enough to take their entire allocation. In considering the small number of participating vessels and the historical effort of the <60' fleet, the Council determined that limiting the <60' class was both unnecessary and detrimental to the small boat fleet. Therefore, because there are no gear endorsements in place for approximately 125 hook-and-line and pot vessels <60' that hold a general non-trawl BSAI groundfish LLP license,[11] the potential exists for a maximum of 125 vessels <60' to fish Pacific cod in the BSAI using pot or hook-and-line gear. A more realistic estimate, however, may be based on the number of <60' vessels that have recently been participating in the BSAI Pacific cod fishery: 16 pot catcher vessels <60' and 31 longline vessels <60' have a BSAI non-trawl groundfish license and have made at least one BSAI Pacific cod landing since 1995, and only 28 longline vessels <60' and 4 pot vessels <60' participated in 2001. (In addition, vessels that do not exceed 32 feet LOA in the BSAI are exempt from the LLP requirements).

[11]Twenty of these licenses are interim; 105 are transferable (as of April 2003).

Table 3.2: Estimated number of ≥60' vessels participating in the BSAI fixed gear cod fishery under the vessel moratorium, LLP, and upon implementation of Amendment 67 (cod endorsement)

	Pot cvs≥60'	Pot cps	H&L cvs≥60'	H&L cps
Vessel moratorium (1995-99)	180	25	27	51
LLP qualified (eff. 2000)	116 (-36%)	15 (-40%)	22 (-19%)	51
Am. 67 qualified* (eff. 2003)	57 (-50%)	6 (-60%)	9 (-59%)	40(-22%)

*Note: Am. 67 "qualified" vessels reflect those that currently appear eligible by a review of ADF&G fishtickets and Blend data by NPFMC staff. Vessels <60' LOA do not need a cod endorsement and are not included in this table. As of 4/10/03, NMFS has issued 153 cod endorsements for 138 individual vessel licenses. Twelve licenses have multiple cod endorsements. Forty-six of those vessel licenses are non-transferable status, based on an appeal of their general qualification, area, gear, or species endorsements. Non-transferable (interim) licenses are issued in the case that an applicant has made claims that differ from the NMFS Official LLP Record. The final number of endorsed licenses will not be known until appeals are completed.

During 1995-1999, a total of 203 pot catcher vessels and 25 pot catcher processors participated in the fishery (made at least one landing targeting cod). Table 3.2 shows that 180 pot catcher vessels ≥60' participated during the same time period. Since LLP became effective, this fleet was reduced to 116 pot catcher vessels ≥60' and 15 pot catcher processors. During the same time period, a total of 70 longline catcher vessels and 51 longline catcher processors participated in the directed BSAI Pacific cod fishery (NPFMC 2000a). In the ≥60' sector, Table 3.2 shows that only 27 longline catcher vessels ≥60' participated during the same time period. Under the LLP, this fleet was reduced to 22 longline catcher vessels ≥60'. The longline catcher processor sector was not affected, as all vessels qualified for an LLP license.

Under the Amendment 67 criteria for a cod endorsement, the eligible pot fleet is currently estimated to be 57 catcher vessels ≥60' and 6 eligible catcher processors, reductions of 50% and 60%, respectively. Similarly, the eligible hook-and-line fleet is estimated to be reduced to 9 longline catcher vessels and 40 longline catcher processors, reductions of 59% and 22%, respectively. This means that substantially fewer fixed gear vessels will be eligible to fish the share of the Pacific cod TAC allocated to the fixed gear sectors upon implementation of Amendment 67. Amendment 67 was approved by the Secretary in November 2001 and implementing regulations were first effective for the 2003 fishing season. More information on the implications of Amendment 67 is provided in Section 3.4.4.

Finally, subsequent to the Council's October 1999 adoption of Amendment 64, several owners of pot catcher processors that participate in the directed BSAI Pacific cod fishery petitioned the Council to initiate a new FMP amendment that would authorize separate Pacific cod directed fishing allowances for catcher processors and catcher vessels using pot gear (65 FR 51555, 8/24/00). Concern stemmed from the assertion that increased fishing effort for Pacific cod with pot gear is due primarily to catcher vessels using pot gear and that the historical harvest share of cod by catcher processors is threatened by this sector. The Council reviewed a separate FMP amendment (**BSAI Amendment 68**) in June 2002 that proposed authorizing a further allocation of Pacific cod between the two pot sectors. The Council ultimately decided to take no action on the amendment, deferring action on the pot split until it could be rolled into one amendment package that would also address the issues associated with the expiration of Amendment 64. Alternative 4 in this amendment package was developed to address the concerns previously considered under Amendment 68.

A summary of the actions as described in this section is provided in the box below.

BSAI FMP Amendments affecting the fixed gear BSAI Pacific cod allocations

BSAI Amendment	Years Effective	Summary of Action
Amendment 24	1994 - 1996	split the BSAI P.cod TAC among trawl gear (54%), fixed gear (44%), and jig gear (2%)
Amendment 46	1997 - present (no sunset date)	split the BSAI P.cod TAC among trawl gear (47%), fixed gear (51%), and jig gear (2%)
Amendment 64	mid-2000 - 2003 (expires 12/31/03)	split the fixed gear share (51%) of the BSAI P.cod TAC among fixed gear sectors
Amendment 67	2003 - present (no sunset date)	required P.cod endorsement (based on participation and landings criteria) on BSAI non-trawl (fixed gear) LLP licenses
Amendment 68	N/A (Council selected 'no action' in June 2002)	(proposed) split the pot share (18.3%) of the fixed gear TAC between pot catcher processors and pot catcher vessels

3.3.2 Catch history in the BSAI Pacific cod Fixed Gear and Jig Fisheries

Baseline information on the fixed gear Pacific cod fishery from 1992-2001 is presented in Table 3.3. That table shows the number of fixed gear vessels that participated in the directed Pacific cod fishery and the amount of catch they harvested by vessel type.[12] The vessel types included in the table are pot and longline vessels subdivided by whether they were operating as catcher vessels or catcher processors.

All catch from the fixed gear TAC as well as reallocated quota[13] is included in Table 3.3. Because Amendment 64 was implemented mid-2000, each sector was constrained to a specific allocation in 2000 and 2001. However, both the hook-and-line catcher vessel and pot sectors had exceeded their 0.3% and 18.3% allocations, respectively, by the time Amendment 64 was effective in September 2000. Thus, these sectors were closed upon the effective date of Amendment 64.

The fixed gear Pacific cod allocations under Amendment 64 are roughly based on the 1995-98 catch of the fixed gear sectors. The <60' vessels were granted an allocation by slightly reducing the percentage

[12] Pacific cod was determined the 'target' species if cod harvests constituted greater than 50 percent of the vessel's harvest on a fishticket basis.

[13] The portion of the TAC that was allocated to the trawl or jig sectors of the Pacific cod fishery at the beginning of the year, but reallocated to the fixed gear sector in September because it would not have been harvested otherwise. Typically the trawl sector would not have harvested the entire allocation because it reached its halibut bycatch cap, and the jig sector because it had insufficient effort to harvest its 2 percent of the BSAI TAC.

allocated to the hook-and-line catcher processor sector.[14] Catch of hook-and-line catcher processors operating as catcher vessels was excluded from the calculation of historic catch distribution. Calculating the total catch in that manner essentially gives the hook-and-line catcher processor sector the majority of its catch history when the vessels were acting as catcher vessels, since it is essentially redistributed based on the current allocation percentages.[15] This was done so that hook-and-line catcher processors would not contribute to the hook-and-line catcher vessel allocation. Including their catch in the catcher vessel sector, when acting as catcher vessels, would increase the hook-and-line catcher vessel allocation by 1.36 percent of the total fixed gear allocation. That increase in the hook-and-line catcher vessel quota would come out of the other sectors' allocations.

If the hook-and-line catcher processor sector's harvests of Pacific cod, when they were operating in the catcher vessel mode, are included in the catcher vessel sector's harvest, catcher processors would still be allowed to fish that allocation since they are currently allowed to harvest from either the catcher vessel or catcher processor allocations. Increasing the catcher vessel allocation might entice additional catcher processor participation in harvesting the catcher vessel allotment[16]. Since the allocation of the fixed gear TAC has been implemented, hook-and-line catcher processor vessels have decreased their participation in harvesting cod from the catcher vessel allocation.

Currently NMFS accounts for each sector's allocation based on the gear type used and the mode of delivery.[17] For example, if a hook-and-line catcher processor processes cod that it harvested, it is counted against that sector's allotment. If they deliver the catch to a processor operating onshore or in State waters, the catch would be deducted from the hook-and-line catcher vessel allotment. The same is true for catcher processors using pot gear.

Table 3.3 shows that the longline catcher processor sector harvested over 80 percent of the TAC in every year except 1996. That year they harvested about 74 percent. Longline catcher vessels harvested the smallest percentage–less than 1%–of BSAI Pacific cod each year. Those vessels never harvested more than 700 mt in a given year. The pot sectors' harvests were greatest in percentages in 1996 (25.8%), with pot catcher-processors taking 6.7% and pot catcher vessels 19.1%.

The table also shows that pot catcher vessels harvested 72 - 87% of the pot share of the fixed gear TAC each year during 1995 - 2001 and pot catcher processors harvested 13 - 28%. Including reallocated

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[14]The hook-and-line catcher processor sector harvested over 81 percent of the fixed gear BSAI Pacific cod during the qualification period. Their allocation was reduced to 80 percent so the <60' pot and longline fleet could be granted an allocation of 1.4 percent of the fixed gear allotment.

[15]This statement simply means that to maintain the current allocation percentages, any additional harvest added to the historical catch would need to be added in the same proportion as the current split. Using the hook-and-line catcher processor vessels as the example, they harvested 81.6 percent of the fixed gear Pacific cod during the qualifying period (excluding their catch when acting as a catcher vessel). To maintain that percentage, catcher processor harvests when they were acting as catcher vessels would need to be allocated 81.6 percent to hook-and-line catcher processors and the remaining 18.4 percent in proportion to the other sector's harvests. Not including that catch in the allocation calculation, by default, assumes that it is being allocated in the same proportion as the current split. If that were not true then the allocation percentages would need to be changed.

[16]The hook-and-line catcher processor sector harvested and delivered shoreside about 198 mt of Pacific cod in 2000 and 1 mt in 2001. The pot catcher processors delivered about 18 mt in 2000 and 174 mt in 2001 to shoreside processors.

[17]NMFS deducts catch reported by catcher processors on WPRs from the catcher processor sector's allotment. Catch reported on fishtickets is deducted from the catcher vessel allotment.

quota, the percentage of total pot catch harvested by pot catcher vessels was greatest in 2000 (87%) and 2001 (83%). Pot catcher vessels generally tend to enter the Pacific cod fishery after the opilio crab fishery closes in the BSAI. Since 1995, the number of catcher vessels that have participated in the directed cod fishery has varied from a high of 119 in 1995 to a low of 73 in 1998. The average number of catcher vessels participating during the seven year time period (1995-2001) is 92. Participation in the cod fishery by pot vessels likely increased between 1993 and 1995 because of a substantial drop in opilio catch. The opilio fleet harvested about 231 million pounds of opilio in 1993 and only 75 million pounds in 1995. In 1993 the opilio fishery lasted approximately two months. In 1995, the fishery was only about one month long. This provided pot vessels a longer fishing window in the cod fishery. It should be noted that while the catch of opilio in 1995 was only one-third of the catch in 1993, the revenue generated by the fleet from opilio was actual greater in 1995 because of increased prices (NPFMC 1998a).[18] About the same number of vessels fished both years (254 in 1993 and 253 in 1995).

The 2000 opilio fishery was delayed because of a more southerly ice edge in the Bering Sea. The fishery started at noon on April 1st and was closed at noon on April 8th, with a GHL of 28.5 million pounds. ADF&G reports show that the commercial open access fishery harvested about 31 million pounds (ADF&G 2000). This change in starting date and limited season length enabled the crab fleet to fish cod prior to fishing opilio. This may have contributed to the slightly greater effort in the BSAI cod fishery from the pot catcher vessel sector in 2000 (113 vessels harvested 87% of the total pot catch). The 2001 and 2002 opilio fisheries returned to the normal January 15 opening with GHLs of 25.3 million pounds and 28.5 million pounds, respectively. In 2001, only 75 pot catcher vessels harvested 83% of the total pot catch. The 2003 opilio fishery also opened on January 15 and closed on January 25, with an open access GHL of 23.6 million pounds.

[18] NPFMC. 1998a. Stock Assessment and Fishery Evaluation Report for the King and Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions. Anchorage, AK.

Table 3.3: Catch of Pacific cod in the BSAI fixed gear Pacific cod target fishery, **including** reallocated quota, 1992 - 2001 (mt)

		Longline						Pot						Fixed Gear Total		Fixed gear TAC[1]
		Catcher Processors			Catcher Vessels			Catcher Processors			Catcher Vessels					
Year	Length	#	Catch	%	#	Catch	%	#	Catch	%	#	Catch	%	Unique #	Catch	
92	0-59'	-	-		44	291		-	-		3	conf.		47	301	
	≥60'	56	98,525		25	350		19	9,087		52	**		141	107,962*	
1992 Total		56	98,525	86.7%	69	641	0.6%	19	9,087	8.0%	55	5,429	4.8%	188	**113,681**	154,700
93	0-59	-	-		9	**		-	-		2	conf.		11	**	
	≥60'	53	61,527		3	conf.		3	conf.		17	**		74	61,527*	
1993Total		53	61,527	96.7%	12	291	<0.5%	3	conf.	conf.	19	1,821	2.9%	85	**63,639***	164,500
94	0-59	1	conf.		6	**		-	-		6	161		13	161*	
	≥60'	47	**		2	conf.		5	1,843		25	6,139		77	7,982*	
1994 Total		48	83,502	90.6%	8	522	0.6%	5	1,843	2.0%	31	6,299	6.8%	90	**92,166**	92,040
95	0-59	1	conf.		26	**		1	conf.		16	412		44	412*	
	≥60'	42	**		3	conf.		7	**		103	16,008		155	16,008*	
1995 Total		43	96,546	81.6%	29	797	0.7%	8	4,560	3.9%	119	16,420	13.9%	199	**118,323**	121,800
96	0-59	-	-	-	14	86		-	-		4	86		18	172	
	≥60'	39	91,113		7	100		11	8,266		91	23,375		148	122,854	
1996 Total		39	91,113	74.1%	21	187	0.2%	11	8,266	6.7%	95	23,461	19.1%	166	**123,026**	138,200
97	0-59	-	-	-	6	44		-	-		3	conf.		9	44*	
	≥60'	38	120,068		8	162		13	5,015		77	**		136	125,245*	
1997 Total		38	120,068	84.3%	14	206	0.1%	13	5,015	3.5%	80	17,086	12.0%	145	**142,375**	152,700
98	0-59	-	-	-	8	**		-	-		3	conf.		11	conf.	
	≥60'	36	94,879		1	conf.		7	3,546		70	**		114	98,425*	
1998 Total		36	94,879	88.2%	9	17	<0.1%	7	3,536	3.3%	73	9,098	8.5%	125	**107,530**	110,567
99	0-59	-	-	-	13	129		-	-		4	45		17	174	
	≥60'	38	77,121		14	88		13	3,055		87	12,280		152	92,544	
1999 Total		38	77,121	83.2%	27	217	0.2%	13	3,055	3.3%	91	12,325	13.3%	169	**92,718**	95,300
00	0-59	-	-		32	248		-	-		4	316		36	248*	
	≥60'	40	81,494		12	110		9	2,607		109	17,040		170	84,211	
2000 Total		40	81,494	80.0%	44	358	0.35%	9	2,607	2.6%	113	17,356	17.0%	206	**101,815**	100,630
01	0-59	-	-		31	431		-	-		6	615		37	1,046	
	≥60'	42	94,463		18	182		6	3,063		69	14,377		135	112,085	
2001Total		42	94,463	83.5%	49	613	0.5%	6	3,063	2.7%	75	14,992	13.3%	172	**113,131**	115,190
Grand Total			899,238			3,849			41,032			124,287			1,068,404	

Source: NMFS Blend data and Fishtickets, 1992-2001.

*excludes confidential (conf.) landings. **data masked to protect calculating confidential landings.

[1]TAC represents the fixed gear portion of the TAC for the years 1994 - 2001. Prior to 1994, the Pacific cod TAC was not split among trawl and fixed gear vessels.

The <60' hook-and-line and pot catcher vessel sector has historically harvested a fairly small percentage of the overall BSAI fixed gear Pacific cod catch. The <60' fleet's annual cod catch exceeded 1,000 mt only in 1995 and 2001, and averaged less than 300 mt during 1995 - 1999. The <60' sector's harvest represents about 0.3% of the total fixed gear Pacific cod harvested on average during 1995 - 1998 or 1995 - 1999. In 2000 and 2001, with a separate allocation of 1.4%, the <60' sector harvested about 0.55% and 0.92% of the total fixed gear Pacific cod harvest (including reallocated quota), respectively. Because the <60' sector's harvest is attributed to the general hook-and-line catcher vessel or pot allocation, depending on the gear type, when those fisheries are open, not all of the <60' harvest is attributed to its 1.4% allocation. In 2000 and 2001, the <60' hook-and-line and pot sector combined harvested 564 mt and 1,046 mt, respectively, but only an estimated 228 mt and 671 mt were attributed to the <60' sector's specific allocation. Thus, in 2000 and 2001, the <60' sector harvested only 19% and 64% of its small boat allocation, respectively.

Within the <60' catcher vessel fleet, Table 3.3 shows that on average during 1995 - 1999, about 61% of the <60' catch was harvested by hook-and-line vessels, while <60' pot vessels dominated the small boat harvest in 2000 - 2001 (average of 57%). Both gear types, however, increased their overall cod catch substantially in 2000 and 2001 compared to prior years in which no distinct allocation existed for the <60' fleet. In addition, the table shows that the <60' hook-and-line catcher vessels represent a substantial portion of the total hook-and-line catcher vessel harvest, about 67% on average during 1995 - 1999 and about 70% during 2000 - 2001. By comparison, the <60' pot vessels make up a much smaller percentage of the overall pot catcher vessel harvest – an average of about 0.3% in the four years prior to 2000. During 2000 and 2001, the <60' pot vessels harvested an average of 3% of the overall pot catcher vessel harvest. Overall, the <60' pot vessels have never harvested more than several hundred metric tons in any given year, peaking at 615 mt in 2001.

While the <60' hook-and-line fleet makes up a much larger relative portion of the overall hook-and-line catcher vessel harvest compared to the <60' pot fleet, note that the hook-and-line catcher vessel fleet has averaged only about 350 mt per year since 1995, while the pot catcher vessel sector has averaged almost 16,000 mt per year during the same time period. In addition, the number of <60' hook-and-line catcher vessels participating in the directed BSAI Pacific cod fishery has varied from a low of 6 to a high of 32 since 1996, while only 3 to 6 pot vessels <60' have participated in any one year during the same time period.

The alternatives proposed for the overall fixed gear TAC split are based on the harvest of each sector during 1995 - 1999 excluding quota reallocated from other gear sectors. Harvest data by gear sector excluding reallocated quota is presented in Table 3.4. Because Amendment 64 went into effect mid-2000, using 2000 and 2001 to determine the overall fixed gear split would result in maintaining similar allocations as established previously under Amendment 64. Since a BSAI Pacific cod allocation is currently made to the pot sector as a whole, the years 1995 - 2001 are being considered to determine the pot split between pot catcher processors and pot catcher vessels, in order to consider the most recent data available. While 2002 data are considered preliminary, the most recent information that is available from NMFS Blend data on the 2002 fishery is included in Table 3.5.

Table 3.4 summarizes the fixed gear Pacific cod harvests in 1995- 2001, excluding any quota that was reallocated (rolled over) each year from the jig and trawl sectors. The data for the catcher processor sector was derived from NMFS blend data, and the catcher vessel data was derived from ADF&G fishtickets. The data in Table 3.4 will be used to calculate the allocation percentages (excluding roll-overs) of the options proposed in Section 3.4. Table 3.4 shows that during 1995 - 2001, the hook-and-line catcher processor sector harvested 74 - 88% of the total fixed gear catch excluding reallocated quota, hook-and-line catcher vessels harvested <1%, and the pot sector harvested 12 - 26%. Hook-and-line and pot catcher vessels <60' harvested 0.04 - 1.1%.

Table 3.4: Catch of Pacific cod in the BSAI fixed gear Pacific cod target fishery, **excluding** reallocated quota, 1995 - 2001 (mt)

		Longline						Pot						Fixed Gear Total	
		Catcher Processors			Catcher Vessels			Catcher Processors			Catcher Vessels				
Year	Length	#	Catch	%	#	Catch	%	#	Catch	%	#	Catch	%	Unique #	Catch
95	0-59	1	conf.		22	**		1	conf.		14	404		38	404*
	≥60'	42	**		3	conf.		7	**		92	14,594		144	14,594*
1995 Total		43	89,437	81.5%	25	760	0.7%	8	4,560	4.2%	106	14,998	13.7%	182	109,755
96	0-59	-	-		14	85		-	-		4	85		18	170
	≥60'	39	87,952		7	100		11	8,130		87	22,752		144	118,934
1996 Total		39	87,952	73.8%	21	185	0.2%	11	8,130	6.8%	91	22,837	19.2%	162	119,105
97	0-59	-	-		6	44		-	-		3	conf.		9	44*
	≥60'	38	115,382		8	162		13	5,001		73	**		132	120,545*
1997 Total		38	115,382	83.8%	14	206	0.1%	13	5,001	3.6%	76	17,057	12.4%	141	137,646
98	0-59	-	-		8	**		-	-		3	conf.		11	**
	≥60'	36	91,224		1	conf.		7	3,525		70	**		114	94,749*
1998 Total		36	91,224	87.8%	9	17	<0.1%	7	3,525	3.4%	73	9,098	8.8%	125	103,864
99	0-59	-	-		12	110		-	-		4	45		16	155
	≥60'	38	66,945		11	79		13	3,027		83	11,831		145	81,882
1999 Total		38	66,945	81.6%	23	189	0.2%	13	3,027	3.7%	87	11,876	14.5%	161	82,037
00	0-59	-	-		32	149		-	-		3	conf.		4	conf.
	≥60'	38	70,558		12	110		9	2,177		100	**		149	72,845*
2000 Total		38	70,558	80.2%	44	260	0.3%	9	2,177	2.5%	103	14,952	17.0%	153	87,947
01	0-59	-	-		28	132		-	-		4	578		32	710
	≥60'	41	70,551		14	125		6	2,243		64	13,445		125	86,364
2001Total		41	70,551	81.0%	42	258	0.3%	6	2,243	2.6%	68	14,023	16.1%	157	87,075
Grand Total			592,049			1,875			28,663			104,841			727,428

Source: NMFS Blend data and Fishtickets, 1995-2001.

*excludes confidential (conf.) landings. **data masked to protect calculating confidential landings.

[1]Note that the fixed gear allocations were implemented September 1, 2000. At that time, the pot sector and the hook-and-line catcher vessel sector were closed, as they had already reached their respective allocations.

On average during 1995 - 1999 (the years prior to the implementation of Amendment 64), hook-and-line catcher processors harvested 81.6%, hook-and-line catcher vessels harvested 0.3%, and pot vessels harvested 18.1% of the total fixed gear BSAI Pacific cod harvest. Catcher vessels <60' harvested an average of 0.3%. Within the pot sector, pot catcher vessels harvested an average of 75.8% of the total pot catch and pot catcher processors harvested an average of 24.2%. If all years 1995 - 2001 are considered, pot catcher vessels harvested an average of 78.5% and pot catcher vessels harvested 21.5%. The range during this time period is somewhat broad: pot catcher vessels harvested 72 - 87% of the total pot harvest and pot catcher processors harvested the remaining 13 - 28%.

The <60' sector's harvest does not change much if reallocated quota is included, as this sector typically stops fishing for Pacific cod prior to the reallocation period. This sector represents about 0.3% of the total fixed gear Pacific cod harvested during 1995 - 1999, an average of about 300 mt per year. In 2000 and 2001, with a separate allocation of 1.4%, the <60' sector harvested about 0.5% and 0.8% of the total fixed gear Pacific cod harvest (excluding reallocated quota), respectively. More information on the <60' sector is included in Section 3.4 in the discussion of the impacts of the alternatives.

As mentioned previously, 2002 data are considered preliminary. Included in Table 3.5 is the most recent information available from NMFS Blend data and ADF&G fishtickets on the 2002 fishery. The year 2002 is not used in any of the alternatives or options for consideration in this amendment; this information is provided for general reference only.

Table 3.5: 2002 catch (mt) of Pacific cod by the fixed gear fisheries in the BSAI

Gear	Quota (mt)	Reallocated quota	Adjusted quota	Catch (mt)	Percentage of Total Catch	# vessels
hook-and-line cps	75,080	14,840	89,920	89,397	85.3%	40
hook-and-line cvs	282	200	482	404	0.4%	59
pot cps	17,175*	-3,140	14,035	2,070	2.0%	5
pot cvs				11,654	11.1%	64
hook-and-line/pot cvs <60'	1,314	0	1,314	1,295	1.2%	14 H&L 5 pot
TOTAL	93,850	11,901	105,751	104,820	100%	

Source: NMFS 2002 Blend data and ADF&G fishtickets. Note that this data has not been refined for 'targeted' Pacific cod using the same method in Tables 3.3 and 3.4. Thus, catch by sector may include Pacific cod harvest that is not in the 'directed' cod fishery.

*Under Am. 64, the pot sector has a shared quota (18.3%) for catcher processors and catcher vessels.

Note: The # vessels is not additive. Catch from vessels <60' is applied toward both the specific <60' allocation and the general hook-and-line and pot catcher vessel sector allocations as appropriate. The <60' sector harvest accrues toward the general hook-and-line and pot catcher vessel sector allocations when those fisheries are open. Preliminary data shows that all of the <60' hook-and-line catch (221 mt) was attributed to the general hook-and-line catcher vessel allocation, while only 45 mt of the <60' pot catch (total of 1,340 mt) was attributed to the general pot allocation. Overall, the <60' sector harvested about 1,561 mt or 1.48% of the total fixed gear BSAI Pacific cod catch in 2002.

Status of closures during 1999 - 2003

The longline and pot Pacific cod fisheries were both closed at noon on April 17, 1999, to prevent the first seasonal fixed gear TAC apportionment from being exceeded. The second trimester pot cod fishery was reopened on May 1, 1999. The pot cod fishery then was closed again on June 1, 1999. Both fisheries remained closed until September, at which time the pot cod fishery reopened on the first and the hook and line fishery reopened on the 15th.

BSAI Amendment 64 was effective September 1, 2000, thus, implementation of the amendment also revised the final 2000 harvest specifications in concert with the hook-and-line and pot gear allocations in the amendment. The hook-and-line catcher processor sector was also the only sector under Amendment 64 to receive seasonal apportionments. A mid-year implementation of Amendment 64 required that any overage of a sector's annual allocation of Pacific cod be deducted proportionately from the other sector's allocations remaining for the year. The directed fishery for fixed gear vessels fishing BSAI Pacific cod was first closed on March 10, 2000, when harvest amounts reached the first seasonal allowance of cod specified for these vessels. At that time, the pot gear fishery had harvested about 20.4% of the annual fixed gear directed fishing allowance, which was about 2% more than they were allocated under Amendment 64 (18.3%). In addition, the hook-and-line catcher vessel fleet had harvested 0.35% of the directed fishing allowance for fixed gear vessels, slightly more than the 0.3% they were authorized under Amendment 64. Because those allocations had already been exceeded, implementation of Amendment 64 also closed the hook-and-line catcher vessel sector and pot gear sectors to further directed fishing for BSAI Pacific cod in 2000. The second trimester hook-and-line catcher processor cod fishery reopened on September 1 and closed on December 9. Longline and pot vessels <60' also reopened on September 1 and closed on December 14.[19]

In 2001, the first full year that the fixed gear allocations were in place under Amendment 64, each sector was subject to seasonal apportionments due to Steller sea lion protection measures, with the exception of the <60' sector. Vessels fishing BSAI Pacific cod using longline gear were allocated quota in two seasons: A) January 1 - June 10 (60%); and B) August 15 - December 31 (40%). Note also that there was no halibut bycatch allowance between June 11 and July 31. Vessels using pot gear were also allocated quota in two seasons: A) January 1 - June 10 (60%); and B) September 1 - December 31 (40%). The directed cod fisheries for hook-and-line catcher processors and hook-and-line vessels ≥60' were closed on March 25 and March 27 for reaching their first season TAC, respectively, then reopened on August 15, and closed again on December 10 due to halibut bycatch. Hook-and-line catcher vessels <60', also subject to halibut bycatch allowances each season, closed on June 11, reopened on August 8 and closed on December 10. The pot sector went on bycatch status on March 27 for reaching their first season TAC, then reopened on September 1. Pot catcher vessels <60' were open throughout 2001. Each sector fully harvested their respective allocations and some additional quota that was rolled over from other sectors, except for the hook-and-line and pot sector <60'. Reallocated quota is discussed in more detail in the following section.

[19] On December 14, 2000, NMFS implemented a final rule that prohibited commercial fishing for Pacific cod in Steller sea lion critical habitat. NMFS revised the final rule to constrain the closure only to directed fishing for Pacific cod by vessels using trawl gear. Under the revised rule, vessels using non-trawl gear could continue to fish in critical habitat consistent with other regulations and fishery closures implemented under 50 CFR part 679. This action allowed small harvest amounts of Pacific cod by vessels using non-trawl gear in a manner that does not pose significant competition with endangered Steller sea lions for Pacific cod.

In 2002, the bycatch allowance apportionments for the longline cod fishery changed slightly, so that there was no halibut bycatch allowance June 10 - August 15. The directed cod fisheries for hook-and-line catcher processors and hook-and-line vessels ≥60' were closed on March 8 (due to halibut bycatch) and June 10 (end of first season), respectively, then reopened on August 15. The catcher processor sector was closed on November 25 due to reaching its allocation, and the catcher vessels remained open throughout the rest of the season. The pot sector went on bycatch status on March 16, due to reaching it's first seasonal allocation, and reopened on September 1. The fishery remained open for the remainder of the season. The hook-and-line and pot sector <60' closed on June 11, as that sector's annual allocation had been fully harvested at that time. With the exception of the pot sector, each sector fully harvested their respective allocations and, in the case of the hook-and-line vessels, some additional quota that was rolled over from other sectors. Preliminary harvest data for 2002 is shown in Table 3.5.

There are numerous speculative reasons the pot cod fishery did not harvest its entire allocation in 2002. Historical evidence suggests that the catch per unit effort is much lower for pot gear in October and November compared to earlier months, and does not start to increase again until December. Some industry participants also contend that it is harder to retain crews to fish relatively little Pacific cod quota late in the year for a much lower price, for example, $0.24/lb, when crews have been making considerably more ($6.20/lb in 2002) in the Bristol Bay red king crab fishery. Other anecdotal evidence suggests that the quality of the cod may be reduced in the fall months for pot catcher processor vessels. Still other catcher vessels with halibut quota share assert that when the weather starts to get worse in the Bering Sea in September and October, many vessels choose to move into the Gulf of Alaska and fish halibut IFQs.

In 2003, under the same seasonal apportionments as prior years, the hook-and-line catcher processor sector and hook-and-line catcher vessel sector harvested their entire A season apportionments and were closed on March 15 and March 28, respectively. The pot sector also harvested its entire A season apportionment and was closed on February 26. The hook-and-line cod fishery B season effectively starts August 15, and the pot cod fishery B season opens September 1. As of mid-April, the <60' hook-and-line and pot sector fishery was still open, having harvested almost half of its entire annual quota. As of April 4, NMFS reported that three hook-and-line and five pot vessels <60' were participating, with the pot vessels accounting for 94 percent of the total deliveries to date.

Reallocated quota (rollovers) to the fixed gear sectors in 2000 - 2002

Historically, the hook-and-line catcher processor sector dominated the harvests in the BSAI Pacific cod fishery, and have continued to take the majority of the quota overall. Because of insufficient effort in the jig fishery and halibut bycatch constraints in the trawl fishery, the hook-and-line catcher processor sector also historically received quota from each of these sectors in the fall. Amendment 64 set in regulation the amount of quota that is reallocated to the fixed gear sectors, based on the average of actual rollover harvests in 1996 - 1998: 95% to hook-and-line catcher processors and 5% to pot vessels. The percentages do not change if 1999 rollover harvest is included. Pot vessels typically harvest very little of their allocation after October, as the cod are generally more dispersed later in the year and CPUEs drop considerably for vessels using pot gear. In addition, many pot vessels leave the cod fishery to harvest crab late in the year before the reallocated cod quota is harvested. Both of these factors likely contribute to the lower relative catch by pot vessels later in the year.

Figures 3.1 - 3.4 show the 1998 - 2001 catch by week for the longline and pot fleets from fishticket and NMFS Blend data.[20] A review of harvest data by week for the longline and pot fleets shows that pot vessels tend to flow into the cod fishery after the winter crab fisheries close in late January or February. Hook-and-line catcher processors typically start the first week of January. Pot vessels also land cod during the summer when the directed cod fishery is closed to longline vessels because there is no halibut bycatch apportioned to the Pacific cod longline fleet June 10 - August 15. As discussed above, later in the year when the reallocated cod quota is being fished, most of the catch is being taken by the longline fleet.

As mentioned previously, reallocated quota from the trawl and jig fisheries is apportioned 95% to hook-and-line catcher processors and 5% to pot vessels based on 1996 - 1998 catch history under Amendment 64. Since the separate gear allocations have been in place, each sector had a different date at which it started fishing 'rollover' catch in 2000 and 2001. Recall that both the pot fishery and the hook-and-line catcher vessel sector were closed upon implementation of Amendment 64 in September 2000 for having already met their allocations.

Fig. 3.1-3.4 exclude catch of pot and longline vessels <60'. The catch is relatively small and does not change the figures significantly. Also, any week's catch that had less than four vessels participating was set equal to zero for that gear type. This was done to meet confidentiality data standards.

Figure 3.1 Weekly Catch of Fixed Gear Pacific cod (1998)

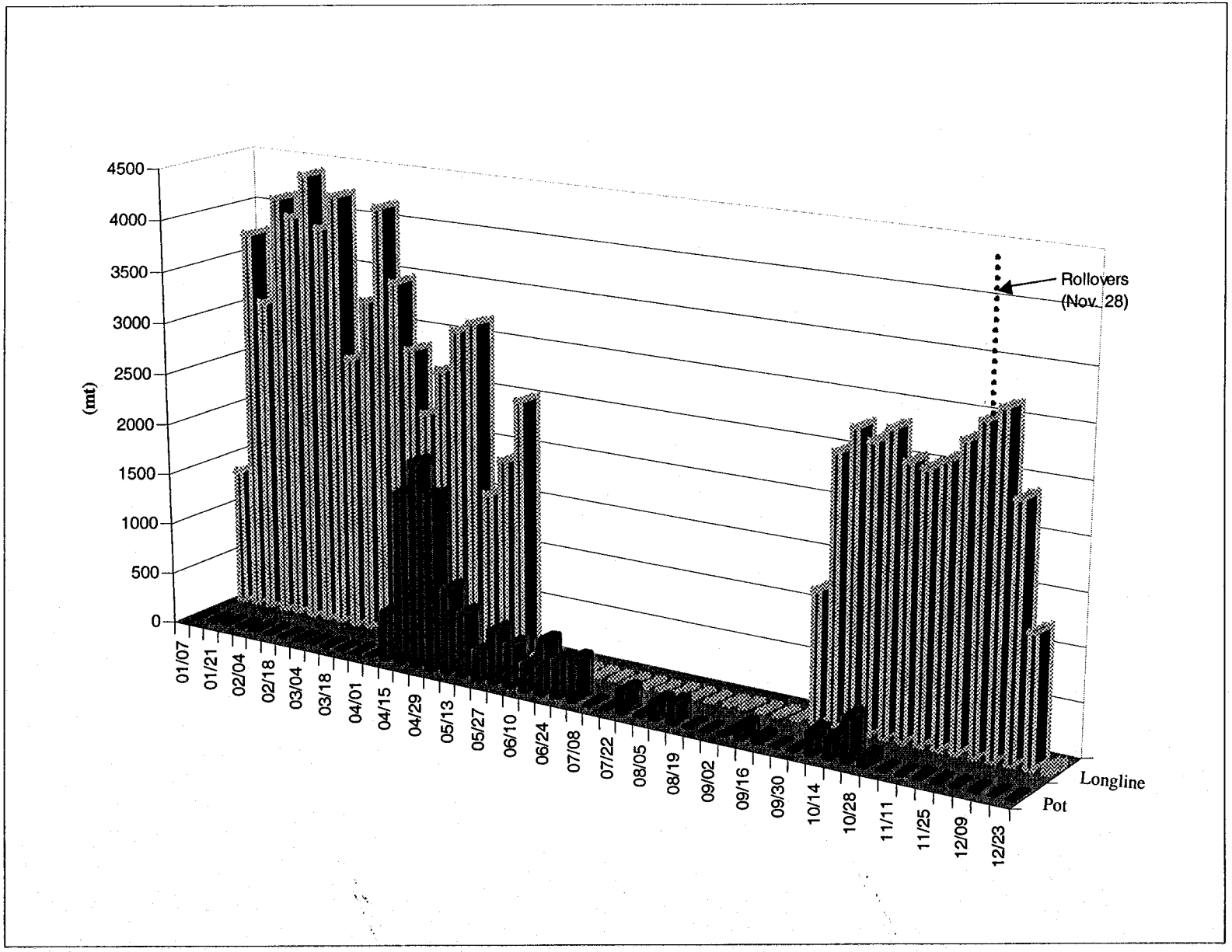


Figure 3.2 Weekly Catch of Fixed Gear Pacific cod (1989)

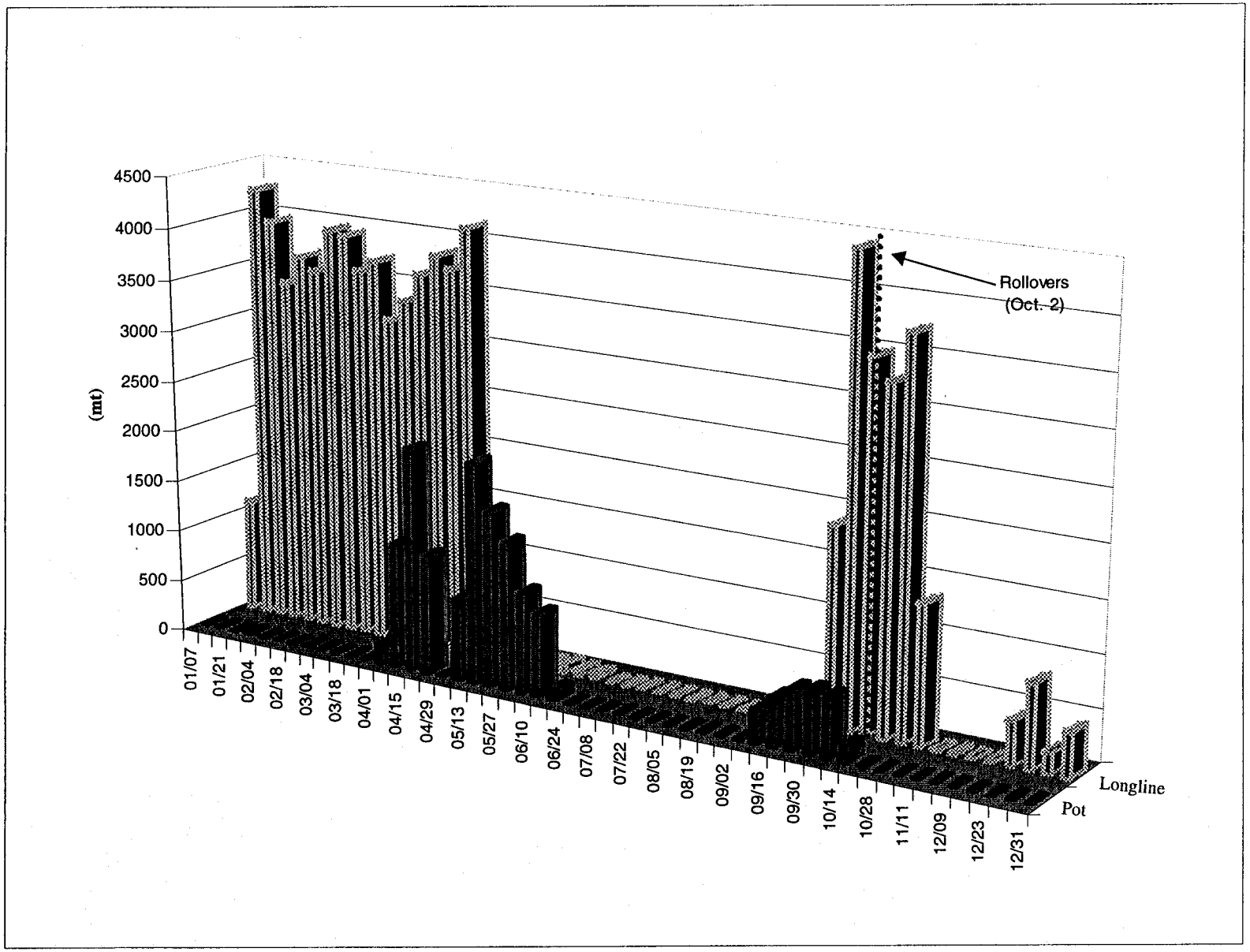


Figure 3.3 Weekly Catch of Fixed Gear Pacific cod (2000)

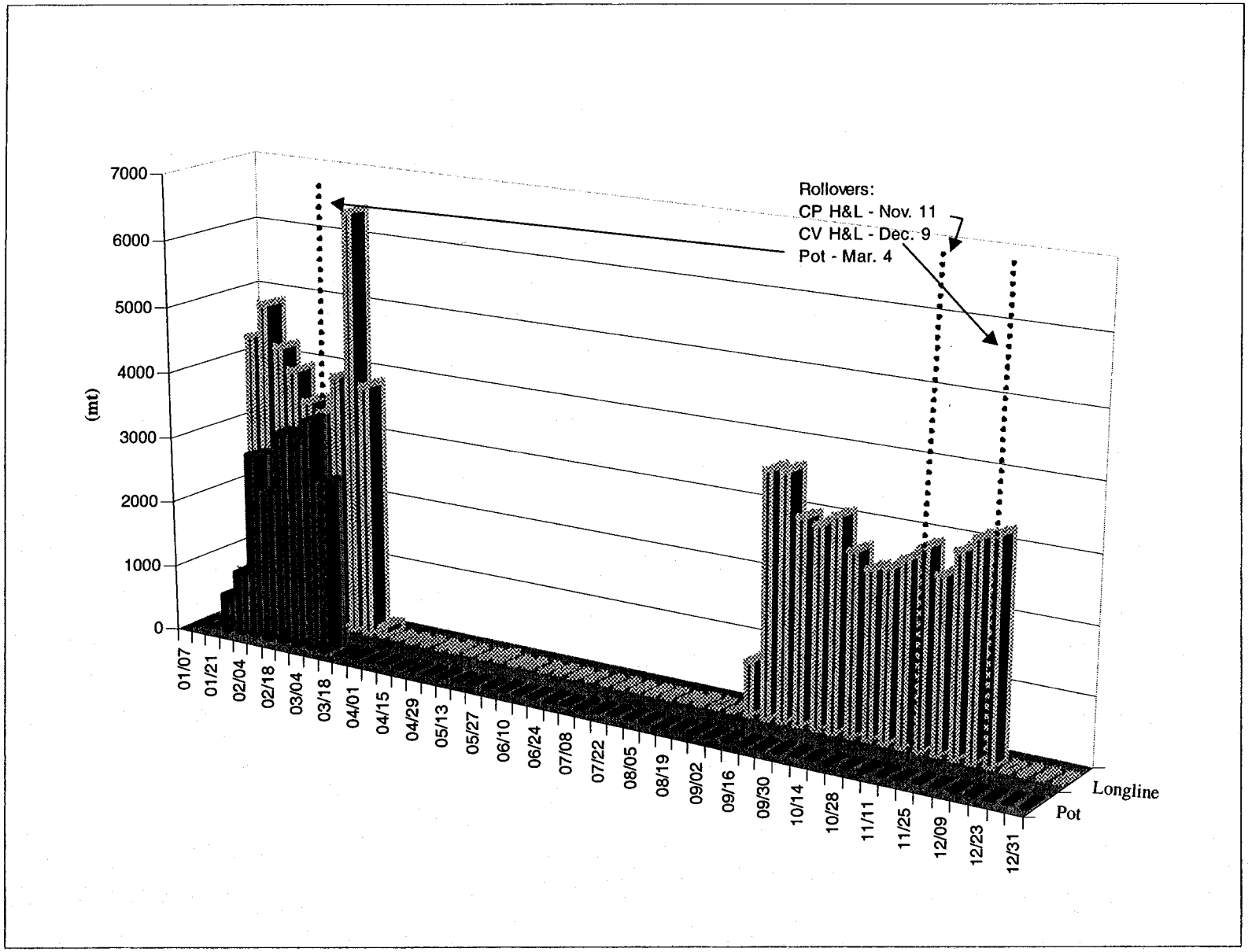
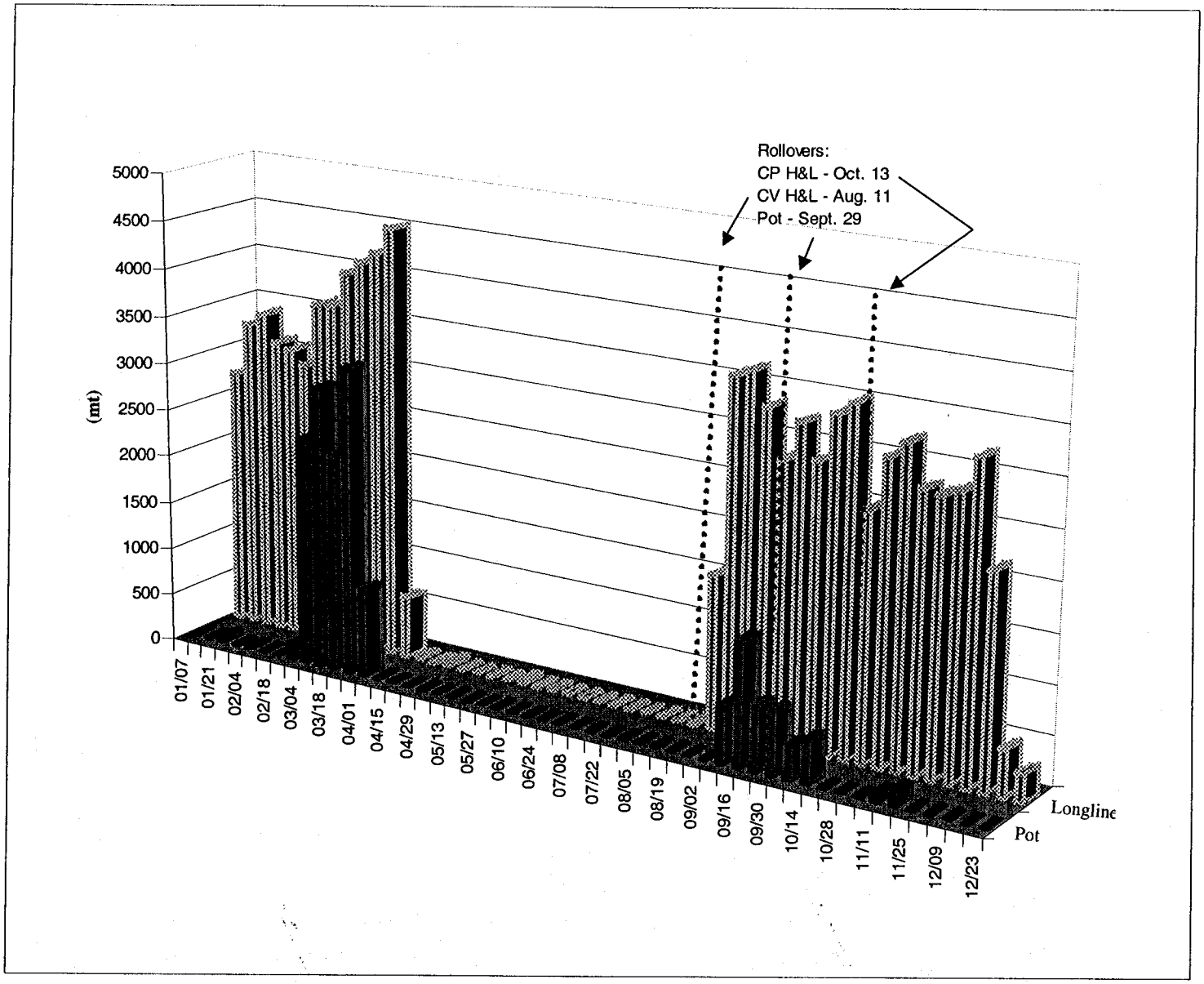


Figure 3.4 Weekly Catch of Fixed Gear Pacific cod (2001)



Annual harvest data excluding any quota that was reallocated from other gear sectors is shown in Table 3.4. Reallocated quota amounts can be estimated by subtracting the annual catch information in Table 3.4 from the information in Table 3.3. The results of that calculation are presented in Table 3.6 below for the years 1995-2001. Tables 3.7 - 3.9 on the following pages show the original allocations under Amendment 64 and details regarding the direction of reallocated quota for the years 2000 - 2002.

Table 3.6 Estimates of roll-over harvests by sector (mt and %), 1995-2001

YEAR	Hook-and-line CP		Hook-and-line CV		Pot CP		Pot CV		Total
	mt	%	mt	%	mt	%	mt	%	mt
1995	7,109	83%	37	<1%	0	0	1,422	17%	8,568
1996	3,161	81%	2	<1%	136	3%	624	16%	3,923
1997	4,686	99%	0	0	14	<1%	29	<1%	4,729
1998	3,655	100%	0	0	11	<1%	0	0	3,666
1999	10,176	95%	28	<1%	28	<1%	449	4%	10,681
2000[1]	10,936	79%	98	<1%	430	3%	2,404	17%	13,868
2001	23,912	92%	355	1%	820	3%	969	4%	26,056
Average 1995 - 01	9,091	90%	74	<1%	206	1%	842	8%	10,276

Source: NMFS Blend data and ADF&G fishtickets, 1995 - 2001.

Note: Amendment 64 was not in place until 9/1/00. This action reallocates quota from the jig and trawl sectors to the hook-and-line cps and pot vessel sectors based on average 1996-1998 rollover harvests: 95% to hook-and-line cps and 5% to the pot sector.

[1]The hook-and-line CVs and pot sector had already exceeded their allocations by the time Am. 64 was effective, thus, those sectors were closed at that time. The "rollover harvests" for those sectors are more accurately described as overharvest of their allocations under Am. 64.

Table 3.7: 2000 reallocations of BSAI Pacific cod quota (mt)

GEAR TYPE	Original Allocation	Reallocated quota*	Revised allocation	Catch[1]
Jig	3,571	-3,000	571	79
Hook-and-line CP	70,558	+11,400	81,958	81,494
Hook-and-line CV	272	0	272	358
Pot Gear	16,570	+600	17,170	19,963
Trawl CP	41,953	-9,000	32,953	31,883
Trawl CV	41,953	0	41,953	41,593

*Note that this represents the net quota reallocated for the year. Reallocations were made October 27, 2000. Note also that Am. 64 allocations were not effective until September 1, 2000, and the longline CV and pot gear sectors were closed at that time for having exceeded their annual allocations. The other fixed gear sectors' allocations were adjusted proportionately to account for the overages.
[1]The <60' CV catch is included in the hook-and-line and pot CV harvest data, although the <60' sector had a separate allocation of 1,230 mt in 2000. The <60' hook-and-line and pot CV combined harvest was 564 mt in 2000. Of this sector's total combined harvest, 336 mt came off the general hook-and-line (336 mt) and pot CV (0 mt) allocations and 228 mt came off the <60' allocation.
Source: NMFS Blend data is used for trawl catch; Blend data and ADF&G fishtickets are used for the jig and fixed gear catch.

Table 3.8: 2001 reallocations of BSAI Pacific cod quota (mt)

GEAR TYPE	Original Allocation	Reallocated quota*	Revised allocation	Catch[1]
Jig	3,478	-3,000	478	102
Hook-and-line CP	70,551	+25,270	95,821	94,463
Hook-and-line CV	265	+400	665	613
Pot Gear	16,139	+1,330	17,469	18,055
Trawl CP	40,867	-10,000	30,867	29,398
Trawl CV	40,867	-14,000	26,867	21,354

*Note that this represents the net quota reallocated for the year. Reallocations were made October 4, 2001.
Source: NMFS Blend data are used for trawl catch; Blend data and ADF&G fishtickets are used for the jig and fixed gear catch.
[1]The <60' CV catch is included in the hook-and-line and pot CV harvest data, although the <60' sector had a separate allocation of 1,235 mt in 2001. The <60' hook-and-line and pot CV combined harvest was 1,046 mt in 2001. Of this sector's total combined harvest, 375 mt came off the general hook-and-line (337 mt) and pot CV (38 mt) allocations and 671 mt came off the <60' allocation.

While data for 2002 areconsidered preliminary, it is presented to reflect a general characterization of the most recent year in which the cod allocations were in place. In 2002, the hook-and-line catcher processors received a total of 14,840 mt of reallocated quota, 3,500 mt of which was quota projected to remain unused by the pot sectors, and 11,340 mt of which was from the jig and trawl sectors. Thus, reallocated quota represented about 16% of the hook-and-line catcher processors' total estimated harvest for 2002, and the total harvest for that sector was almost 85% of the total BSAI Pacific cod fixed gear TAC including reallocated quota.

Table 3.9: 2002 reallocations of BSAI Pacific cod quota (mt)

GEAR TYPE	Original Allocation	Reallocated quota*	Revised allocation	Catch[1] (preliminary data)
Jig	3,700	-3,400	300	164
Hook-and-line CP	75,080	+14,840	89,920	89,397
Hook-and-line CV	282	+200	482	404
Pot Gear	17,175	-3,140	14,035	13,724
Trawl CP	43,475	-6,500	36,975	36,496
Trawl CV	43,475	-2,000	41,475	41,237

*Note that this represents the net quota reallocated for the year. Reallocations were made September 27 and November 20, 2002. Source: NMFS Blend data, 2002. This is preliminary data that has not been refined for 'targeted' Pacific cod using the method in Tables 3.3 and 3.4. Thus, catch by sector may include Pacific cod harvest that is not in the 'directed' cod fishery.
[1]The portion of the <60' CV catch that was attributed to the general hook-and-line CV and pot allocations is included in the catch for these sectors, although the <60' sector had a separate allocation of 1,314 mt in 2002. The <60' hook-and-line and pot CV combined harvest is estimated at 1,561 mt in 2002.

BSAI Pacific cod harvests using jig gear

Amendment 24 to the BSAI FMP established a 2 percent allocation of Pacific cod to vessels using jig gear. That allocation has been in place since 1994 and has provided jig vessels the opportunity to harvest Pacific cod during much of the year. The jig fishery was not seasonally apportioned until 2002. Even with the extended seasons (no seasonal restrictions), the jig fleet never harvested its entire 2 percent cod allocation for a variety of reasons, including weather and profitability of the fishery. The jig fishery is currently seasonally apportioned similar to the other non-trawl cod fisheries: the first season is allocated 60 percent of the TAC and the second season is allocated 40 percent of the TAC. Any unused portion of a seasonal Pacific cod allowance is reapportioned to the next seasonal allowance. If the jig fishery is not projected to take its entire allocation, a portion of the quota is typically reallocated to the fixed gear sector later in the year. Under Amendment 64, the reallocated quota is apportioned 95% to the hook-and-line catcher processors and 5% to pot gear.

Information on the number of vessels that harvested cod in the BSAI using jig gear and their relative cod harvest is included in Table 3.10. In recent years, the number of jig vessels participating in the cod fishery has declined from a high of 47 in 1995 to 10 vessels in 1998. These vessels have generally been catcher vessels and less than 60' in length.[21] The total amount of cod caught with jig gear was smallest in 2000 (79 mt), and this fleet has not harvested more than 200 mt since 1996. Overall, the jig sector has harvested no more than 6% of its entire allocation since 1996. This information has been included to show that roll-overs from the jig sector will likely continue in the future. Several options are included under Alternatives 2 and 3 which consider creating seasonal allocations of BSAI Pacific cod for the jig sector and modifying the way unused jig quota is currently reallocated to other sectors.

[21]Over 99 percent of the jig cod harvest was taken by catcher vessels <60' during 1995 - 2001. A very small amount (<1 mt) of BSAI Pacific cod was harvested by catcher processors using jig gear in 1995, 1999, and 2000 (less than 0.3 mt on average). These vessels and their harvest is included in Table 3.10.

Table 3.10: Allocation, catch, and number of vessels participating in the directed BSAI Pacific cod fishery using jig gear, 1995-2002

Year	Allocation (mt)	Reallocated quota	Catch (mt)	% of original allocation harvested	# vessels
1995	5,000	- 4,000	724	14.5%	47
1996	5,400	- 4,400	330	6.1%	33
1997	5,400	- 5,000	171	3.2%	17
1998	3,885	- 3,500	191	4.9%	10
1999	3,275	- 2,800	201	6.1%	16
2000	3,571	- 3,000	79	2.2%	17
2001	3,478	- 3,000	102	2.9%	21
2002*	3,700	- 3,400	164	4.4%	19

Source: ADF&G fishtickets 1995-2001. *2002 is preliminary data from NMFS electronic shoreside database.

3.3.3 Distribution of catch within each fixed gear sector

This section describes the distribution of catch within each fixed gear sector, during the time period 1995 - 1999. This time period represents the years under consideration for the fixed gear split (Alternative 3). Recall that Alternative 2 would continue the existing allocations to each fixed gear sector, which was based roughly on participation by sector during 1995 - 1998.

Hook-and-Line Catcher Processors

In the hook-and-line catcher processor fleet, the estimated 40 vessels that qualify for a Pacific cod endorsement accounted for about 98 percent of that sector's BSAI harvest of Pacific cod from 1995 - 1999. Overall, of all 51 participants during 1995 - 1999, five vessels accounted for 25 percent of the sector's catch of BSAI Pacific cod, 12 vessels 50 percent, 19 vessels 75 percent, and 28 vessels 90 percent. The remaining 23 vessels accounted for the other 10 percent of the hook-and-line catcher processor harvest of cod during the 1995 - 1999 time period.

Hook-and-Line Catcher Vessels

Five of the 126 catcher vessels that fished BSAI cod using longline or jig gear between 1995-99 accounted for 49 percent of that sector's total cod catch. Fourteen vessels accounted for 75 percent of the catch, and 32 vessels accounted for 90 percent of the catch. The remaining 94 vessels harvested 10 percent of the 1995-99 total cod catch. It took 37 vessels to harvest just 1 percent of this sector's total catch (about 65,000 pounds). This equates to about 1,750 lbs per vessel over a five-year period, or about 350 lbs per year. Three hook-and-line catcher vessels ≥60' are estimated to qualify under the participation criteria for a Pacific cod endorsement, as well as 6 hook-and-line catcher processor vessels that did not qualify under the catcher processor criteria but did meet the catcher vessel criteria. These three hook-and-line catcher vessels ≥60' combined with the <60' vessels that participated, harvested about 97% of the total BSAI hook-and-line catcher vessel harvest during 1995 - 1999.

Pot Catcher Processors

Six of the 25 pot catcher processors participating in 1995-99 harvested about 76 percent of that sector's total BSAI cod harvest in that time period. Ten of the pot catcher processors harvested over 90 percent of the total. The remaining fifteen vessels accounted for only 10 percent of the sector's total catch from 1995-99. Six of the total 26 catcher processors that have participated during 1995 - 2001 are estimated to qualify under the participation requirements for a Pacific cod endorsement under Amendment 67.

Pot Catcher Vessels

Relatively few of the pot catcher vessels accounted for a majority of the fixed gear Pacific cod harvest from 1995-99. During that time period a total of 203 unique vessels reported cod harvests, 180 of which were ≥60' LOA. Six of the 203 vessels accounted for 25 percent of the catch, 17 vessels (50 percent), 38 vessels (75 percent), and 69 vessels (90 percent). The remaining 10 percent of the cod harvest in this sector was taken by the other 134 vessels. This distribution should not be unexpected. In many fisheries a few "core" boats account for much of the harvest.

Fifty-seven pot catcher vessels ≥60' are estimated to qualify under the recency requirements adopted by the Council in Amendment 67.[22] These vessels harvested about 80% of the total pot catcher vessel BSAI cod harvest during 1995 - 1999. Amendment 67 does not require catcher vessels <60' to have a cod endorsement; this sector needs only an LLP license to prosecute the BSAI fixed gear Pacific cod fishery. Over the period 1995-1999, only 16 pot vessels <60' participated in the BSAI cod fishery. In 2000 and 2001, the number of participating <60' vessels was 4 and 6, respectively.

3.3.4 Vessel participation patterns in the BSAI Pacific cod fishery

In addition to the number of vessels and their aggregate total catch, information on their participation patterns is also important to consider. Tables which represent each vessel's participation history are included in this section (Tables 3.11 - 3.14). A separate table was developed for each of the four vessel classes under consideration. The shaded cells in the tables represent participation in that year. The column on the left side of the table reports the number of vessels that are represented by that participation pattern. The column on the right side of the tables is a sum of the years that the vessels participated in the Pacific cod fishery between 1995 - 2001. So, if a vessel fished in all seven years, the Years Fished column would report 7.

Several important issues were being considered by the Council that would affect the Pacific cod vessels during this time period. The first was LLP. Qualifying years for LLP area endorsements were January 1, 1992 through June 17, 1995. The second issue was the Pacific cod TAC split among fixed and trawl gear vessels, which was scheduled to sunset on December 31, 1996. The Council made their final decision on that amendment package during the June 1996 meeting. The third issue was the Pacific cod TAC split among the fixed gear sectors, approved by the Council in October 1999. Finally, the Council made a decision on the Pacific cod endorsement for fixed gear vessels ≥60' in April 2000. These issues may have provided motivation for vessels to fish in a manner that they would not have otherwise. However, it is not possible to determine exactly how participation patterns were influenced by these amendments. It is clear that many vessels fishing in just one year participated in the last year for LLP endorsement qualification (1995). This trend is consistent across all vessel sectors.

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[22] Three of these 57 vessels are pot catcher processors that met the criteria for a pot catcher vessel (CV) cod endorsement, but not a catcher processor (CP) endorsement.

Table 3.11: Participation patterns of the hook-and-line catcher processor fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
1								5
1								1
1								1
1								1
1								1
1								2
1								4
2								1
2								1
2								1
2								5
3								1
4								3
4								1
4								1
5								3
6								2
6								1
7								27
Total Vessels	43	39	38	36	38	40	42	62
	121,800	138,200	152,700	110,567	95,300	81,958	95,821	TAC*

Source: NMFS AKR Blend data 1995-01.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the hook-and-line catcher processor sector's portion of the fixed gear TAC for the years 2000 and 2001, including reallocated quota.

Table 3.12: Participation patterns of the hook-and-line catcher vessel fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
1								17
1								8
1								7
1								6
1								9
1								18
1								24
2								10
2								3
2								4
2								1
2								7
3								3
3								1
3								1
3								1
4								2
4								1
4								1
4								1
4								2
4								1
4								1
Total Vessels	29	21	14	9	27	44	49	129
	121,800	138,200	152,700	110,567	95,300	272	665	TAC*

Source: NMFS AKR Blend data 1995-01.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the hook-and-line catcher vessel sector's portion of the fixed gear TAC for the years 2000 and 2001, including reallocated quota.

Compared to any other fixed gear sector of the cod fishery, participation in the hook-and-line catcher processor sector has been fairly stable over the time period under consideration (Table 3.11). Twenty-seven (44%) of the 62 vessels participated in all seven years. Fifteen of the vessels only participated in one year, 8 of the vessels participated in only two years, 1 vessel fished three years, 5 vessels fished four years, 3 vessels fished five years, and 3 vessels fished six years. Vessels in this class have also exhibited the greatest fishing power in the fixed gear cod fleet.

A total of 129 unique longline catcher vessels have participated in the BSAI Pacific cod target fishery over the 1995- 2001 time period (Table 3.12). Eighty-nine (69%) of those vessels only fished one year, 25 fished two years, 6 vessels fished three years, and nine vessels fished four years. No vessels fished in more than four years during the seven-year time period.

Table 3.13: Participation patterns of the pot catcher processor fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
1								2
1								3
1								5
1								0
1								3
1								0
1								0
2								1
2								1
3								1
3								1
3								1
3								1
4								1
4								1
5								1
5								1
6								1
7								2
Total Vessels	8	11	13	7	13	9	6	26
	121,800	138,200	152,700	110,567	95,300	17,170	17,469	TAC*

Source: NMFS AKR Blend data 1995-01.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the pot gear portion of the fixed gear TAC for the years 2000 and 2001. The pot allocation was not split between pot catcher processors and pot catcher vessels.

The total number of pot catcher processor vessels participating in the BSAI cod fishery has been fairly stable over the 1995 - 2001 time period, as shown in Table 3.13 above. However, while the total number of vessels fishing in a year has varied between 6 and 13 vessels, the boats that participate have not been as stable. Only seven of the twenty-six pot catcher processors participating over the time period fished in at least four of the seven years. The remaining 19 vessels fished three years or less, and three of the vessels entered the fishery for the first time in 1999. Half (13) of the vessels participated in only one year during 1995 - 2001.

Table 3.14: Participation patterns of the pot catcher vessel fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
1								28
1								13
1								4
1								12
1								8
1								17
1								5
2								10
2								4
2								3
2								2
2								2
2								9
2								1
2								2
2								2
2								5
3								3
3								2
3								1
3								1
3								1
3								2
3								1
3								1
3								1
3								2
3								1
3								2
3								1
3								2
3								1
3								1
3								1
4								2
4								1
4								2
4								1
4								1
4								1

Table 3.14: Participation patterns of the pot catcher vessel fleet in the BSAI Pacific cod fishery, 1995 - 2001 (continued)

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
4								1
4								1
4								1
4								2
4								2
4								1
4								1
4								2
4								1
5								1
5								1
5								2
5								2
5								1
5								1
5								1
5								2
5								3
5								1
5								1
5								1
5								2
6								5
6								3
6								1
6								4
6								3
6								4
7								16
Total Vessels	119	95	80	73	91	113	75	226
	121,800	138,200	152,700	110,567	95,300	17,170	17,469	TAC*

Source: NMFS AKR Blend data 1995-01.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the pot gear portion of the fixed gear TAC for the years 2000 and 2001. The pot allocation was not split between pot catcher processors and pot catcher vessels.

A total of 226 pot catcher vessels participated in the BSAI Pacific cod fishery from 1995 - 2001 (Table 3.14). Eighty-seven of these vessels fished in only one year, and 28 vessels fished only in 1995. Forty vessels

fished in two years, 24 vessels fished in three years, 20 fished four years, 19 fished five years, 20 fished six years, and 16 fished all seven years. Therefore, only about 33 percent of the vessels fished cod at least four of seven years.

3.3.5 Ex-vessel Prices and Revenues

Ex-vessel BSAI Pacific cod prices for the fixed gear sector ranged between $0.249 and $0.342 per pound over the period 1993 through 1997 (Grieg 1998). During 1998 through 2000, ex-vessel prices ranged from $0.139 and $0.302 per pound (Hiatt 2002). During this time period, the prices paid to pot and longline vessels were similar; some years pot catcher vessels received slightly more revenue per pound than longline vessels, and other years the longline vessels were paid a slightly higher price. The 2001 ex-vessel prices for fixed gear vessels are $0.26 per round pound of cod for hook-and-line gear and $0.24 per round pound of cod for pot gear. These ex-vessel prices were developed from gross earnings estimates prepared by the Commercial Fisheries Entry Commission (CFEC), and will be used in Section 3.4 to project changes in estimated gross ex-vessel revenues resulting from the proposed alternatives. Details on the methodology used to derive these ex-vessel prices are provided in Appendix A.

3.3.6 Products Produced from Pacific cod

The product mix information for 2001 is also provided in Appendix A. In sum, catcher processors produce mostly eastern and western cut H&G (headed and gutted) products and a few ancillary products. Shorebased processors, on the other hand, produce fillets, salted and split, and H&G products, along with a wide variety of ancillary products.

3.3.7 First Wholesale Prices and Revenues

The amount paid to the first processors of fish for their product is first wholesale revenue. This analysis uses 2001 production patterns and prices to estimate the first wholesale value of a metric ton of round Pacific cod to each sector. Data from the 2001 COAR reports were used to estimate first wholesale price by product form and gear sector. The 2001 first wholesale prices are estimated to be $1,075/mt of round cod for hook-and-line catcher processors, $1,184/mt of round cod for pot catcher processors, and $1,258/mt of round cod for inshore deliveries from fixed gear catcher vessels. The methodology used to derive these first wholesale prices is described in Appendix A.

3.3.8 Other Sources of Pacific Cod Mortality

Another source of Pacific cod mortality is the bait fishery. Pacific cod is often used as bait by crab fishermen in the BSAI. To obtain bait, members of the crab fleet can either purchase the cod from other fishermen or harvest the cod themselves. Many vessel operators opt to harvest their own Pacific cod, however, not all of the cod caught for bait is reported to the State or NMFS. Over the 1995-98 time period a total of 507 mt of Pacific cod was reported as landed for bait by hook-and-line vessels. Pot vessels reported harvesting 822 mt over the same period. These amounts do not likely represent the entire amount of Pacific cod that was harvested for crab bait by the fixed gear sector.

Determining the amount of Pacific cod that was harvested for bait, but not reported is difficult to estimate. Amendment 46 to the BSAI FMP attempted to provide a rough estimate. Two different methodologies were used to make those estimates. The first looked at bycatch of cod in crab fisheries (NPFMC 1996). It was

assumed that those fish would be used as bait. Estimates indicated that 8,452 mt and 5,428 mt of Pacific cod bycatch were taken during the years 1994 and 1995, respectively. These estimates were made by assuming that the average cod taken as bycatch weighed 10 pounds, and the number of fish were multiplied by the assumed average weight.

The second method assumed that 10 pounds of bait cod were used for each pot pull that occurred in the BSAI (NPFMC 1996). During 1993, 2.7 million pot pulls were reported in the BSAI crab fishery. That equates to about 12,000 mt of bait. Fewer pots were pulled during the 1996 and 1997 BSAI crab fisheries. During those years, 1.2 and 1.3 million pots were pulled. So, less than half the amount (5,500 to 6,000 mt) of bait was calculated to have been taken. Given these estimates of the amount of bait used, it appears that much of the bait harvested by fixed gear vessels is not reported.

Tracking the amount of cod taken for bait has likely become more important in recent years, as the BSAI Pacific cod ABC and TAC have been set equal to each other. Prior to 1998, the TAC was often set below ABC. The gap that existed between ABC and TAC allowed the bait fishery to proceed with little concern by fisheries managers. In 1998 through 2001, the BSAI Pacific cod ABC and the TAC were set equal to each other. In 2002 and 2003, the TAC was again set lower than the ABC, by about 10% and 7%, respectively. If in future years that buffer no longer exists, accounting for bait may become a higher priority. In addition, the national standard guidelines for National Standard 1 specify that all fishing mortality must be counted against the OY, including that resulting from bycatch, research fishing, and any other fishing activities.

If regulations are implemented requiring bait to be reported, those harvests may well reduce the directed catch of cod by the fixed gear sector. It is unknown if the pot sector or longline sector would realize a greater negative impact if bait was accounted for in the future. The issue of bait accounting should be considered by the groundfish plan team, ADF&G, and NMFS.

The amount of cod bycatch in the halibut IFQ fishery is also currently unknown. Additional data collection programs would need to be implemented to estimate that bycatch. Recall that the majority of vessels in that fishery are small and currently observers are not required on those vessels. Therefore, accurate assessments of Pacific cod bycatch in the halibut fishery cannot be made. Bycatch of cod in fixed gear groundfish fisheries is relatively small.

3.3.9 Effect of 2002 - 2003 Steller sea lion measures on Pacific cod fixed gear fishery

NMFS completed a Final Supplemental Environmental Impact Statement on Steller sea lion (SSL) protection measures in November 2001, which includes the agency's and Council's preferred alternative ("Alternative 4: Area and Fishery Specific Approach"). This alternative was developed by the Council's RPA Committee and adjusted by the Council at its September and October 2001 meetings and was put into place in 2002. On October 19, 2001, NMFS released a biological opinion which concluded that the area and fishery-specific approach would not be likely to jeopardize the continuing existence of the Steller sea lion nor adversely modify its critical habitat. These measures will continue in 2003 unless modified by the Council or U.S. District Court.[23] This approach allows for different types of management measures in the Aleutians, Bering

[23] On December 17, 2002, the U.S. District Court concluded that the 2001 Biological Opinion's finding of no adverse modification of habitat and no jeopardy to the existence of the Steller sea lion was arbitrary and capricious because the necessary analysis of the impact of the RPA on Steller sea lions, their prey, and their critical habitat was not performed. The 2001 Biological Opinion has been remanded to NMFS for further action.

Sea, and Gulf of Alaska. Essential measures include fishery specific closed areas around rookeries and haulouts and season and gear apportionments. The temporal and spatial measures applicable to the BSAI hook-and-line and pot cod fisheries are as follows (see the SSL Final SEIS (NMFS 2001b) for details and measures applicable to all fisheries):

Vessels fishing with Pot Gear:	
Seasonal and TAC apportionments:	Jan. 1 - June 10 (60%), Sept. 1 - Dec. 31 (40%) Pot catcher vessels <60' do not have seasonal apportionment.
Pacific cod rollover in the BSAI:	Unharvested cod TAC can be rolled over from one season to the next.
Area restrictions:	Aleutian Islands - No fishing in critical habitat east of 173 West to western boundary of Area 9, 0-10 nm closures at Buldir, 0-20 nm closure at Agligadak. Bering Sea - 0-3 nm closures around all rookeries and haulouts. 0-7 nm closure around Amak rookeries.
Vessels fishing with Hook-and-Line (and Jig) Gear:	
Seasonal and TAC apportionments:	January 1 - June 10 (60%), June 10 - Dec. 31 (40%) Hook-and-line catcher vessels <60' do not have seasonal apportionment.
Pacific cod rollover in the BSAI:	Unharvested cod TAC can be rolled over from one season to the next.
Area restrictions:	Aleutian Islands - Same as for pot gear above. Bering Sea - same as for pot gear above, plus 0-10 nm closure around Bishop Point and Reef Lava haulouts in Area 8 for hook-and-line vessels ≥60'.

The concern regarding this action, noted during development of the Steller sea lion SEIS, is that management measures taken to protect the Steller sea lion may be more restrictive to catcher vessels (that are limited to fishing closer to shore) than to the catcher processors. If the Steller sea lion measures shifted the location of the cod fishery significantly farther offshore, there was a concern that, due to safety issues, the catcher vessel fleet would either take longer, or not be capable of, harvesting its entire allocation under the options for consideration in this amendment. Changes in fishery management regulations that result in vessels, particularly smaller vessels, operating farther offshore, appear likely to increase the risk of property loss, injury to crew members, and loss of life. Steller sea lion regulations that close, or severely restrict, fishing in nearshore critical habitat to operations targeting cod could compel vessel operators to choose between assuming these increased risks or exiting these fisheries for some or all of the fishing season (NMFS 2001b).

The hook-and-line catcher vessel sector has had a separate allocation from the hook-and-line catcher processor sector since mid-2000. The hook-and-line catcher vessel sector receives 0.3% of the fixed gear share of the BSAI Pacific cod TAC, which typically equates to less than three hundred metric tons of Pacific cod. Since Amendment 64 went into effect in mid-2000, this sector has fully utilized its allocation plus some additional quota reallocated from other gear sectors. In 2002, preliminary data indicates that the hook-and-line catcher vessel sector harvested its entire original allocation of 282 mt, plus an additional 122 mt of reallocated quota. Should similar allocations be maintained under this action, there is no evidence to suggest that this sector would be unable to continue to harvest its entire allocation in the future, notwithstanding a considerable increase in the Pacific cod TAC or increasingly restrictive management measures to protect Steller sea lions.

Likewise, this sector may be negatively affected should the no action alternative be selected (Alternative 1). This would allow the fixed gear allocations to expire under Amendment 64 and cause the hook-and-line catcher vessels to compete with all other fixed gear sectors to harvest one common cod quota. Having a distinct quota keeps this sector from having to compete with the catcher processor sector, which is comprised of some larger vessels and which can typically operate farther offshore for longer periods of time. While this is true regardless of management restrictions in place for the protection of Steller sea lions, the seasonal and spatial restrictions in the Steller sea lion RPA may tend to exacerbate the difficulties these vessels face in competing for the Pacific cod quota.

By contrast, the BSAI Pacific cod allocated to the pot sector is not currently split into two distinct quotas for each pot sector. That split is proposed under Alternative 4 of this amendment package. Given that the above Steller sea lion management measures have been recently implemented, it is important to consider whether the restrictions placed on the BSAI pot cod fishery in 2002 would affect whether either pot sector would be prevented from harvesting a direct cod allocation should they be established under this action. It is also important to consider, in light of these new restrictions, whether the cumulative impact of the proposed action to split the pot cod TAC would impact either pot sector in a distinctly different manner from the other.

Table 3.15 shows that the SSL measures under the preferred alternative chosen by the Council (Alternative 4 in the SSL SEIS), close areas from which 9% of the total cod harvests were taken by pot catcher processors in 1999 and areas in which 13.6% of the total cod harvests were taken by pot catcher vessels. In addition,

Table 3.15: Percent of 1999 directed BSAI pot cod catch taken inside and outside the areas restricted under the SSL measures (2001)

Season	Pot catcher/processors		Pot catcher vessels	
	% In	% Out	% In	% Out
A season	8.1	91.9	12.8	87.2
B season	10.7	89.3	17.6	82.4
Total	8.8	91.2	13.6	86.4

Source: NMFS, Dave Ackley and SSL SEIS 2001.

Note: Pot cps and cvs harvested 72.7% and 83.8% of their total 1999 catch in the A season, respectively.

these measures temporally disperse the fishing in the open areas: 60% in the A season (Jan. 1 - June 10) and 40% in the B season (Sept. 1 - Dec. 31). While seasonal apportionments were not yet in place in 1999, pot catcher processors and catcher vessels harvested approximately 73% and 84% of their total cod catch before June 10.

In the case of very restrictive management measures, it may benefit smaller pot catcher vessels to have a distinct catcher vessel allocation, so that they are not competing for a general pot allocation with catcher processors who can spend a longer time at sea without going to port. A separate allocation would allow catcher vessels a longer window of opportunity to harvest the cod, reducing the pressure to squeeze a longer trip into marginal weather conditions in order to harvest the same amount of cod as previous years.

However, Table 3.15 shows that in 1999, the majority of both the pot catcher processor and pot catcher vessel harvest was taken *outside* of the restricted areas for Steller sea lion protection that were implemented under the current RPA. About 9% of the pot catcher processor harvest and 14% of the catcher vessel harvest

in 1999 were taken in areas that are now restricted in 2002, a difference of about 5%. Thus, even though pot catcher vessels harvested slightly more of their total catch closer to shore and in Steller sea lion critical habitat areas than pot catcher processors, the difference is fairly modest. Given this information, it is assumed that the Steller sea lion measures are not uniquely restrictive to pot catcher vessels; it appears this sector would be able to continue to compete with pot catcher processors for the BSAI Pacific cod pot share of the TAC should separate pot allocations not be established.

Of potentially greater importance may be the seasonal allocations that are relatively new to the pot sector. Both pot sectors typically take the majority of their catch in the A season (January 1 - June 10). In 1999, for example, without seasonal allocations in place, pot catcher processors and catcher vessels harvested approximately 73% and 84% of their total cod catch before June 10, respectively. With the 2001 Steller sea lion protection measures, the pot sector has been limited to 60% of the pot cod TAC during the A season. The pot cod fishery in the BSAI was closed in mid to late March in both 2001 and 2002 upon reaching the A season TAC, and in 2002, the pot sector did not harvest its entire B season TAC. Anecdotal evidence suggests that it is much more difficult to harvest Pacific cod with pot gear in the fall, as the cod are less aggregated and CPUEs typically decline. In addition, the weather starts to get worse after September, making it more difficult for smaller vessels to stay on the fishing grounds.

However, while the seasonal allocations for the pot sector may have implications for its ability to harvest its full allocation, it is uncertain whether seasonal restrictions will affect whether one pot sector will have more difficulty than the other. Overall, this brief review suggests that the current Steller sea lion management measures, both closed areas and seasonal allocations, would not cause the pot catcher vessel sector to have substantial difficulty harvesting a distinct allocation under Alternative 4.

3.4 Expected Effects of the Alternatives

Four primary alternatives are being considered, including the no action alternative, to determine the percentage of the BSAI Pacific cod TAC that will be apportioned to each fixed gear sector. They are:

Alternative 1: No Action

Alternative 2: Status quo - Continue the current fixed gear allocations, based roughly on 1995 - 1998 harvest distribution among the fixed gear sectors **(preferred alternative)**

Alternative 3: Modified status quo - Apportion the fixed gear Pacific cod TAC based on 1995 - 1999 harvest distribution among the fixed gear sectors

Alternative 4: Pot split - (applicable only in conjunction with Alternative 2 or 3). Apportion the pot share of the fixed gear TAC between pot catcher vessels and pot catcher processors according to catch histories during:
Option 1: 1995 - 1999
Option 2: 1996 - 2001
Option 3: 1998 - 2001
Option 4: 2000 - 2001

A comprehensive description of the alternatives and options under consideration is provided in Section 3.2. The BSAI Pacific cod TAC would be allocated among freezer longliners, longline catcher vessels, longline and pot vessels <60', and the pot sector based on their historical catch during the time period selected under either Alternative 2 or 3. Alternative 4 would further divide the pot sector share of the BSAI Pacific cod TAC between pot catcher vessels and pot catcher processors. Several sub-options are also provided under

Alternatives 2 and 3 which would provide direction on how to reallocate quota that is projected to remain unused by other gear sectors to the fixed gear sectors. There is also an option for this action to sunset five years after implementation.

Table 3.16 (same as Table 3.4) is a summary of fixed gear Pacific cod harvests, excluding roll-overs from jig and trawl allocations, for the years 1995 - 2001. To exclude roll-overs, the amount of Pacific cod reallocated from the jig and trawl sectors was determined from NMFS news releases. The roll-over amount was then subtracted from the total fixed gear catch. If the fishery was closed because the hook-and-line fleet hit the halibut cap before the TAC was taken or because of conservative management practices, then the amount of TAC left on the table was subtracted from the roll-over. This was done because not all of the TAC rolled over to the fixed gear sector would have been harvested that year. Weekly catch histories were then summed, starting at the beginning of the year, until the level of the initial fixed gear apportionment was reached.

For example, in 1999, the fixed gear apportionment of the TAC was 95,300 mt, which included 11,800 mt of roll-over from the trawl and jig sectors. The data indicates that only 92,718 mt[24] were caught before the fishery reached bycatch limits, so a difference of 2,582 mt went unharvested. This difference of 2,582 mt was then subtracted from the roll-over amount of 11,800 mt, resulting in 9,218 mt of net roll-over to be excluded from the catch tally for the overall fishery. A cut-off date for the fishery was then determined by adding the cumulative catch backwards from the end of the season until it summed to the net roll-over amount of 9,218 mt. This occurred during the 40th week of the year, corresponding to a week ending date of October 2nd. Therefore, Alternative 3, which includes the year 1999, only counts data through October 2nd, 1999.

This method of determining when the fixed gear sector began fishing on Pacific cod rolled-over from the trawl and jig sectors was also used for the other years included in this analysis. Using this method to account for roll-overs, catch history stopped counting on October 21, October 26, December 13, November 28, and October 2 for the years 1995 through 1999, respectively. With the separate fixed gear allocations under Amendment 64 for the hook-and-line catcher processor, hook-and-line catcher vessel, and pot sectors, it is possible to track any quota reallocated to each sector in a given year. In 2000, the hook-and-line catcher processors and hook-and-line catcher vessels generally started fishing reallocated quota after November 11 and December 9, respectively. The pot vessels' allocation under Amendment 64 was harvested by March 4, thus anything after this week-ending date was beyond their allocation. This is because both the hook-and-line catcher vessel and pot sector had exceeded their allocations under Amendment 64 by the time it was effective September 1, 2000. Thus, the 'rollover' catch attributed to these sectors in 2000 may be more accurately represented as 'overharvest.' In 2001, the hook-and-line catcher processors started fishing reallocated quota on October 13 and hook-and-line catcher vessels on August 11. The pot sector's catch history stopped counting September 29. The catch by each gear group was then calculated using the truncated data set.

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[24]Note that in Table 3.1, the total harvest for the 1999 fixed gear sector is reported to be 92,718 mt, based on NMFS Blend data for catcher processors and ADF&G fishticket data for catcher vessels. When only NMFS Blend data were used the total was 95,002 mt. Variation between the two amounts is the result of using fishtickets to estimate the harvest by individual catcher vessels. Using the catch of individual catcher vessels was necessary to determine the number of catcher vessels participating in the fishery and their size class. The difference between the two methods of estimating catch is 2,284 mt. This difference is a result of variations in catch estimates throughout the entire fishing year, and should not be assumed to have occurred only during the roll-over period. Taking that into account, the difference during the roll-over period is likely closer to 200-300 mt. Even if the entire difference had occurred during the roll-over period, that amount of catch would not change our estimate of the week in which roll-over catch started counting. This is due to the size of the difference in the two estimates relative to the weekly harvest of Pacific cod by the fixed gear sector during the relevant weeks. Therefore, for the calculations done in this section, the difference in catch between the two data sources does not have any impact on the results.

The 1995 - 1999 data from this table will be used to calculate the general fixed gear allocation percentages under Alternative 3. Percentage allocations will be calculated by summing the catch of each sector over the specified time period and dividing that amount by the total catch in the fixed gear sector. The resulting percentages can be multiplied by the 2003 fixed gear TAC to provide an estimate of the future years' catch under each of the alternatives and options. Revenues at the ex-vessel level for catcher vessel deliveries, and at the ex-processor level for all sectors will be made. The first wholesale revenue estimates will also depend on the products produced by that sector and will be discussed later.

Harvest data were derived from NMFS Blend files for catcher processors and ADF&G fishtickets for catcher vessels. Fixed gear deliveries from the CDQ fisheries were excluded as was Pacific cod bycatch in directed fisheries other than Pacific cod. Pacific cod roll-overs from the jig and trawl gear apportionments are excluded in the data presented for Alternatives 2 and 3, as the Council's intent in the original fixed gear split under Amendment 64 was to exclude reallocated quota in the allocation calculations. However, Table 3.3 in Section 3.3.2 provides harvest information during 1995 - 2001, including cod harvested by the fixed gear sector as a result of roll-overs from other gear sectors. A discussion is provided in that section on the impact of the relative harvest distribution including reallocated quota.

As previously explained, vessels are not required to report Pacific cod that was harvested for use as bait, and cod bycatch in the Pacific halibut fishery is not reliably documented. Therefore, not all landings of Pacific cod are reported or included in this data set. The extent to which these landings occur, but are not reported, understates the true Pacific cod harvests of pot and longline vessels. The issue of unreported bait landings is discussed in more detail in Section 3.3.8 of this document.

Table 3.16: Catch of Pacific cod in the BSAI fixed gear Pacific cod target fishery, **excluding** reallocated quota, 1995 - 2001 (mt)

		Longline						Pot						Fixed Gear Total	
		Catcher Processors			Catcher Vessels			Catcher Processors			Catcher Vessels				
Year	Length	#	Catch	%	#	Catch	%	#	Catch	%	#	Catch	%	Unique #	Catch
95	0-59	1	conf.		22	**		1	conf.		14	404		38	404*
	≥60'	42	**		3	conf.		7	**		92	14,594		144	14,594*
1995 Total		43	89,437	81.5%	25	760	0.7%	8	4,560	4.2%	106	14,998	13.7%	182	109,755
96	0-59	-	-		14	85		-	-		4	85		18	170
	≥60'	39	87,952		7	100		11	8,130		87	22,752		144	118,934
1996 Total		39	87,952	73.8%	21	185	0.2%	11	8,130	6.8%	91	22,837	19.2%	162	119,105
97	0-59	-	-		6	44		-	-		3	conf.		9	44*
	≥60'	38	115,382		8	162		13	5,001		73	**		132	120,545*
1997 Total		38	115,382	83.8%	14	206	0.1%	13	5,001	3.6%	76	17,057	12.4%	141	137,646
98	0-59	-	-		8	**		-	-		3	conf.		11	**
	≥60'	36	91,224		1	conf.		7	3,525		70	**		114	94,749*
1998 Total		36	91,224	87.8%	9	17	<0.1%	7	3,525	3.4%	73	9,098	8.8%	125	103,864
99	0-59	-	-		12	110		-	-		4	45		16	155
	≥60'	38	66,945		11	79		13	3,027		83	11,831		145	81,882
1999 Total		38	66,945	81.6%	23	189	0.2%	13	3,027	3.7%	87	11,876	14.5%	161	82,037
00	0-59	-	-		32	149		-	-		3	conf.		4	conf.
	≥60'	38	70,558		12	110		9	2,177		100	**		149	72,845*
2000 Total		38	70,558	80.2%	44	260	0.3%	9	2,177	2.5%	103	14,952	17.0%	153	87,947
01	0-59	-	-		28	132		-	-		4	578		32	710
	≥60'	41	70,551		14	125		6	2,243		64	13,445		125	86,364
2001Total		41	70,551	81.0%	42	258	0.3%	6	2,243	2.6%	68	14,023	16.1%	157	87,075
Grand Total			592,049			1,875			28,663			104,841			727,428

Source: NMFS Blend data and Fishtickets, 1995-2001.

*excludes confidential (conf.) landings. **data masked to protect calculating confidential landings.

[1]Note that the fixed gear allocations were implemented September 1, 2000. At that time, the pot sector and the hook-and-line catcher vessel sector were closed, as they had already reached their respective allocations.

3.4.1 Alternative 1: No action

The BSAI Pacific cod TAC has been apportioned among the trawl, fixed, and jig gear sectors since 1994, with currently 51% allocated to the fixed gear sector, 47% to trawl, and the remaining 2% to jig gear. Table 3.3 in the previous section provides harvest data for the BSAI fixed gear Pacific cod fishery from 1995 through 2001, including quota reallocated from the jig and trawl sectors, and Table 3.16 provides harvest data over the same time period, excluding quota reallocated from other sectors. (Note that 2002 data are considered preliminary and not included in these tables.) During 1995 - 1999, the fishery was not apportioned among the longline and pot gear components. While there is no one year which is more representative of the no action alternative, between 1995 and 1999, these fishing practices resulted in longline catcher processor vessels harvesting 74 to 88 percent of the total fixed gear apportionment and pot vessels harvesting the remaining 12 to 26 percent (excluding roll-over amounts from other gear groups, Table 3.16). Longline catcher vessels harvested about 0.3% percent on average, as did the <60' catcher vessel fleet.

Starting in September 2000, BSAI Amendment 64 apportioned the BSAI Pacific cod fixed gear TAC among hook-and-line catcher processors (80%), hook-and-line catcher vessels (0.3%), hook-and-line and pot vessels <60' (1.4%), and pot vessels (18.3%).[25] This allocation scheme is roughly based on the relative catch histories of each sector from 1995 - 1998, with the exception of the <60' catcher vessel sector, which had harvested less than 1% of the fixed gear portion of BSAI Pacific cod during the years under consideration. Since the allocations were not effective until September 1, 2000, both the pot sector and the hook-and-line catcher vessel sector were closed at that time, having already reached their respective allocations. Thus, while the pot sector did receive a small amount (600 mt) of reallocated quota in October 2000, both sectors slightly exceeded their total allocations for the year. The first full year that the allocations were in place was 2001. The allocations established under BSAI Amendment 64 expire on December 31, 2003.

Alternative 1 (no action) would allow the fixed gear management structure described above to expire, and the split among the trawl, fixed, and jig sectors would remain. The range of catch distribution experienced prior to establishing the allocations in 2000 would likely be expected to continue, barring disruptive changes in this and other fisheries. While the fixed gear sector as a whole would continue to receive 51% of the BSAI Pacific cod TAC, the no action alternative would allow pot and longline vessels to resume competing among and within sectors to harvest as much of the fixed gear TAC apportionment as possible. Absent distinct fixed gear allocations, any Pacific cod quota projected to remain unused by other (trawl and jig) gear sectors would be reallocated to the overall fixed gear sector as deemed appropriate by the Regional Administrator.

Because the allocations currently in place under Amendment 64 are roughly based on the relative catch histories of each sector from 1995 - 1998, one may expect, at least initially, the same general distribution among sectors to continue under the no action alternative as have been present in the past. However, there are some recent regulatory changes that may affect the harvest distribution in future years, absent a fixed gear split.

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[25] In addition, under Amendment 64, any unharvested portion of the hook-and-line catcher vessel and the <60' hook-and-line and pot quota was rolled over to the hook-and-line catcher processors, and any quota reallocated from the jig and trawl sectors was apportioned 95% to hook-and-line catcher processors and 5% to pot vessels.

The greatest change in the fishery since Amendment 64 has been the requirement for a Pacific cod endorsement on non-trawl BSAI groundfish licenses (BSAI Amendment 67). Expiration of the fixed gear allocation under Alternative 1 would not change the Council's action on Amendment 67. In addition, recall that the License Limitation Program (LLP) was not in place until January 1, 2000, thus an LLP license was not required during the time period on which the allocations under Amendment 64 were based. These requirements, for both an appropriate LLP groundfish license and the Pacific cod endorsement, will effectively reduce the number of vessels eligible to fish BSAI Pacific cod in the future. **Therefore, the group of vessels that participated during the years used to determine the original fixed gear split will not be the same fleet that can participate starting in 2003, whether or not the fixed gear allocations are allowed to expire.**

As stated previously, 203 unique pot catcher vessels participated in the directed cod fishery during 1995-99 and only an estimated 119 of those are LLP qualified. In the ≥60' sector, 180 pot catcher vessels ≥60' participated in 1995 - 1999, and 116 of those are LLP qualified. Of those 116, 57 (54 catcher vessels and 3 catcher processors) are estimated to qualify for a pot catcher vessel BSAI cod endorsement. (Recall that <60' catcher vessels are not required to hold a cod endorsement under Amendment 67.) Of the 25 unique pot catcher processors that participated in the directed BSAI cod fishery during 1995-99, 15 of those are LLP qualified, and 6 will likely qualify for a pot catcher processor BSAI cod endorsement in the long-term.

A total of 70 hook-and-line catcher vessels and 51 hook-and-line catcher processors participated in 1995 - 1999, and 44 and 51 are LLP qualified, respectively. In the ≥60' sector, 27 hook-and-line catcher vessels participated in 1995 - 1999, and 22 of those are LLP qualified. Of those 22, a total of 9 (3 catcher vessels plus 6 catcher processors) are estimated to qualify for a hook-and-line catcher vessel BSAI cod endorsement. Of the 51 unique hook-and-line catcher processors that participated in the directed BSAI cod fishery during 1995-99, all 51 are LLP qualified, and 40 will likely qualify for a hook-and-line catcher processor BSAI cod endorsement. Table 3.17 below shows how many fixed gear vessels ≥60' are estimated eligible under the vessel moratorium, LLP, and Amendment 67 requirements.

Table 3.17: Estimated number of ≥60' vessels participating in the BSAI fixed gear cod fishery under the vessel moratorium, LLP, and upon implementation of Amendment 67 (cod endorsement)

	Pot cvs≥60'	Pot cps	H&L cvs ≥60'	H&L cps
Vessel moratorium (1995-99)	180	25	27	51
LLP qualified (eff. 2000)	116 (-36%)	15 (-40%)	22 (-19%)	51
Am. 67 qualified* (eff. 2003)	57 (-50%)	6 (-60%)	9 (-59%)	40(-22%)

*Note: Am. 67 "qualified" vessels reflect those that currently appear eligible by a review of ADF&G fishtickets and Blend data by NPFMC staff. Vessels <60' LOA do not need a cod endorsement and are not included in this table. As of 4/14/03, NMFS has issued 153 cod endorsements for 138 individual vessel licenses. Twelve licenses have multiple cod endorsements. Forty-six of those vessel licenses are non-transferable status, based on an appeal of their general qualification, area, gear, or species endorsements. Non-transferable (interim) licenses are issued in the case that an applicant has made claims that differ from the NMFS Official LLP Record. The final number of endorsed licenses will not be known until appeals are completed.

A vessel license must also be endorsed to fish in the area of the BSAI for Pacific cod. Of the vessel licenses that staff estimates are endorsed under Amendment 67, the following area endorsements also apply:

Gear	BSAI	BS only	AI only	Total
Pot CPs	3	3	0	6
Pot Cvs	6	51	0	57
H&L Cps	38	2	0	40
H&L Cvs	7	1	1	9

Due to the regulatory changes in the BSAI cod fishery identified above, there is no fishing year that is representative of the regulatory conditions of the fixed gear BSAI Pacific cod fishery should no action be taken on the proposed amendment. The greatest impact of these regulatory changes is that substantially fewer vessels are eligible to fish BSAI Pacific cod than participated in the past. There has not yet been a full fishing year in which both the License Limitation Program and Amendment 67 cod endorsement requirements have been in place, let alone a year in which the distinct allocations to each fixed gear sector have been in place under those circumstances. This will occur for the first time in the 2003 fishing season, prior to the scheduled expiration of the fixed gear allocations on December 31, 2003.

Note that the number of endorsed vessels in Table 3.17 reflect staff's best estimate of eligible vessels at the current time, given a review of the RAM list (as of 4/14/03), relevant harvest data, and information on the nature of the appeal. Thus, while the RAM list identifies vessel licenses with current cod endorsements for 2003, including several interim licenses, staff conducted a review to attempt to better represent the number of licenses with cod endorsements that will be eligible in the long-term. This review includes some licenses that are currently designated as interim on the basis that the vessel has claimed a CP (catcher processor) cod endorsement for a specific gear type when the NMFS Official record shows that they only qualify for a CV (catcher vessel) cod endorsement for that gear type. Thus, the license receives both endorsements (CP and CV) until a final agency determination is made on the appeal. Upon determination, the claimant will receive only one of those cod endorsements for that gear type.[26] Note also that the number of endorsed vessels in Table 3.17 is not additive, as an individual vessel may qualify for and receive a cod endorsement for both hook-and-line and pot gear.[27]

In addition, catcher vessels <60' are not affected by Amendment 67, and are therefore allowed entry into the BSAI Pacific cod fishery providing they have the appropriate (BSAI non-trawl) LLP license. Estimates as of April 2003 indicate that 125 catcher vessels <60' hold BSAI non-trawl LLP groundfish licenses, which includes 20 licenses with interim status. Therefore, the total number of eligible catcher vessels may be greater due to the potential for increased and/or new entry by the <60' vessel class. Recall that while 125 vessels may have the appropriate license, only 16 unique pot catcher vessels <60' and 31 unique longline catcher vessels <60' participated (at least one landing) in the directed BSAI cod fishery during 1995-1999, and their average cumulative catch was about .27% of the average total fixed gear BSAI cod harvest. In 2000 and 2001, 31 and 32 hook-and-line vessels <60' participated, and 4 and 6 pot vessels <60' participated, respectively. The <60' sector averaged about 0.75% of the total fixed gear Pacific cod catch in 2000 - 2001.

The following Tables 3.18 - 3.21 show the participation patterns in the BSAI Pacific cod fishery of only those vessels that staff estimates are endorsed for the long-term. Thus, these tables represent a subset of Tables 3.11 - 3.14 in Section 3.3.4 which show vessel participation history for all vessels that were fishing during 1995 - 2001. A separate table was developed for each of the four vessel classes under consideration. The shaded cells in the tables represent participation in that year. The column on the left side of the table reports the number of vessels that are represented by that participation pattern. The column on the right side is a sum of the years that the vessels participated in the Pacific cod fishery between 1995 - 2001. So, if a vessel fished in all seven years, the Years Fished column would report 7.

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[26] Upon review of the harvest data for these vessels, staff determined that 3 pot CPs and 6 hook-and-line CPs qualify for and will likely receive a CV cod endorsement (as opposed to a CP cod endorsement). These CPs are thus included in the count of endorsed CV vessels in Table 3.17, but their harvest is not included in Table 3.18 since a comparison is being made to all vessels that participated in a specific gear sector.

[27] As of 4/14/03, RAM has issued multiple cod endorsements to twelve vessels.

Table 3.18: Participation patterns of the **endorsed**[1] hook-and-line catcher processor fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
2								2
3								1
4								3
4								1
4								1
5								3
6								2
6								1
7								26
Total Vessels	33	34	35	34	35	35	36	40
	121,800	138,200	152,700	110,567	95,300	81,958	95,821	TAC*

Source: NMFS AKR Blend data, 1995 - 2001.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the hook-and-line catcher processor sector's portion of the fixed gear TAC for the years 2000 and 2001, including reallocated quota.

[1]Staff estimates that 40 hook-and-line catcher processors will qualify for a hook-and-line CP Pacific cod endorsement in the long-term.

Table 3.18 shows that two-thirds of the endorsed vessels in the hook-and-line catcher processor sector fished during all seven years in the time period. Of the remaining vessels, two vessels fished in two years; one vessel fished in three years; five vessels fished in four years; three vessels fished in five years; and three vessels fished in six years. Recall that to qualify for an endorsement in this sector, a vessel must have made at least 250 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one of the years 1996 - 1999.

Table 3.19: Participation patterns of the **endorsed**[1] hook-and-line catcher vessel fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
1								1
4								1
4								1
Total Vessels	2	1	1	0	2	1	2	3
	121,800	138,200	152,700	110,567	95,300	272	665	TAC*

Source: NMFS AKR Blend data 1995-2001.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the hook-and-line catcher vessel sector's portion of the fixed gear TAC for the years 2000 and 2001, including reallocated quota.

[1]Staff estimates that three hook-and-line catcher vessels ≥60' will qualify for a hook-and-line CV Pacific cod endorsement in the long-term. In addition, six hook-and-line catcher processors may qualify for this endorsement.

There are only three hook-and-line catcher vessels ≥60' that appear to qualify for a cod endorsement in the long-term. Recall, however, that staff estimates that six hook-and-line catcher processors which did not meet the criteria for a CP endorsement, will qualify under the less stringent criteria for a CV endorsement. (Longline catcher vessels must have made at least 7.5 mt of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in any one year 1995 - 1999.) These six vessels are not included in Table 3.19 since they are not part of the sector represented previously in Table 3.12, which relates the participation patterns for all hook-and-line catcher vessels that fished during this time period. Of the six catcher processors that appear to qualify, their participation patterns range from one year to seven years during 1995 - 2001.

Table 3.20: Participation patterns of the **endorsed**[1] pot catcher processor fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
4								1
5								1
5								1
6								1
7								2
Total Vessels	6	6	5	4	5	4	4	6
	121,800	138,200	152,700	110,567	95,300	17,170	17,469	TAC*

Source: NMFS AKR Blend data 1995-2001.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the pot gear portion of the fixed gear TAC for the years 2000 and 2001. The pot allocation was not split between pot catcher processors and pot catcher vessels.

[1]Staff estimates that six pot catcher processors will qualify for a pot CP Pacific cod endorsement in the long-term.

There are six pot catcher processors that staff estimates will be eligible for a BSAI Pacific cod pot CP endorsement in the long-term. One of these vessels fished four of the seven years, two fished five years, one fished six years, and two fished all seven years. Recall that to qualify, a pot catcher processor must have made at least 300,000 lbs of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995 - 1998.

In the pot catcher vessel sector, there are fifty-four vessels ≥60' that staff estimates will be eligible for a BSAI Pacific cod pot CV endorsement in the long-term. Recall, however, staff estimates that three pot catcher processors which did not meet the criteria for a CP endorsement, will qualify under the less stringent criteria for a CV endorsement. (Pot catcher vessels ≥60' must have made over 100,000 lbs of landings in the directed commercial BSAI Pacific cod fishery (excluding discards) in each of any two years 1995 - 1999.) These three vessels are not included in Table 3.21 since they are not part of the sector represented previously in Table 3.14, which relates the participation patterns for all pot catcher vessels that fished during this time period. Of the three catcher processors that appear to qualify, their participation patterns range from two to four years during 1995 - 2001.

Table 3.21: Participation patterns of the **endorsed**[1] pot catcher vessel fleet in the BSAI Pacific cod fishery, 1995 - 2001

Years Fished	1995	1996	1997	1998	1999	2000	2001	Vessels
2								1
3								1
3								1
4								1
4								1
4								1
4								1
4								1
4								2
4								1
5								1
5								1
5								1
5								1
5								1
5								1
5								1
5								2
5								1
5								2
6								3
6								2
6								1
6								3
6								3
6								4
7								15
Total Vessels	44	40	43	41	40	43	44	54
	121,800	138,200	152,700	110,567	95,300	17,170	17,469	TAC*

Source: NMFS AKR Blend data 1995-01.

*TAC represents the fixed gear portion of the TAC for the years 1995 - 1999, including quota reallocated from other gear sectors. Prior to 2000, the Pacific cod TAC was not split among vessels using hook-and-line and pot gear. TACs represent the pot gear portion of the fixed gear TAC for the years 2000 and 2001. The pot allocation was not split between pot catcher processors and pot catcher vessels.

[1]Staff estimates that 54 pot catcher vessels will qualify for a pot CV Pacific cod endorsement in the long-term. In addition, three pot catcher processors may qualify for this endorsement.

As stated previously, the nature of the fleet that participated during the years prior to the fixed gear split (1995-1999) has changed. Some of those vessel licenses are non-transferable and endorsed for BSAI Pacific cod, some are interim licenses and endorsed for BSAI Pacific cod, and some licenses are not endorsed for BSAI Pacific cod. The following Table 3.22 breaks out the catch history by vessel, sector, and staff's estimates of cod endorsement qualification. Note that because <60' pot and longline vessels are not required to have a cod endorsement to participate in the BSAI Pacific cod fishery, <60' harvest is not included in Table 3.22. However, Table 3.3 indicates that <60' pot vessels contributed approximately 607 mt to the pot catcher vessel total during 1995 - 1999 (<0.8%) and 931 mt during 2000 - 2001 (2.8%). The <60' longline vessels contributed an additional 957 mt to the total hook-and-line catcher vessel total during 1995 - 1999 (67%) and 679 mt during 2000 - 2001 (70%). Thus, in the hook-and-line catcher vessel sector, the <60' catcher vessels typically account for a substantial portion of the overall harvest. If <60' vessels were included in Table 3.22, the endorsed hook-and-line catcher vessels ≥60' and the participating <60' vessels combined would have made up approximately 97% of the overall BSAI Pacific cod hook-and-line harvest in 1995 - 1999 and about 83% during 2000 - 2001.

Table 3.22: Catch history (mt) and number of ≥60' vessels (endorsed and non-endorsed) participating in the BSAI Pacific cod fishery, 1995 - 2001

Gear Type	1995 - 1999						2000 - 2001					
	Qualified for cod endorsement		Not qualified*		Total		Qualified for cod endorsement		Not qualified*		Total	
	catch	# vessels	catch	# vessels	catch	# vessels	catch	# vessels	catch	# vessels	catch	# vessels
Pot Cvs ≥60'	62,444 (80%)	54	15,946 (20%)	126	78,390 (100%)	180	19,086 (60%)	54	13,262 (40%)	76	32,348 (100%)	130
Pot CPs	18,663 (76%)	6	5,769 (24%)	19	24,432 (100%)	25	3,858 (68%)	5	1,811 (32%)	5	5,670 (100%)	10
H&L Cvs ≥60'	conf.	3	**	24	1,424	27	conf.	3	**	20	971	23
H&L CPs	472,095 (98%)	40	7,631 (2%)	10	479,727 (100%)	52	168,964 (96%)	38	6,993 (4%)	8	175,957 (100%)	46

*Note: Vessels in the "not qualified" category include those without a cod endorsement and some vessels with interim licenses with cod endorsements as of April 2003. Vessels in the qualified category include those vessels that staff has estimated to be qualified (some with interim licenses) based on the RAM list, harvest data, and other information relevant to their appeal status. Vessels <60' LOA are not required to have a cod endorsement; their harvests are not included in this table.

Note: Three pot CPs and 6 longline CPs whose history only qualifies for a CV endorsement are not included in the CV sector's total harvests. They are included in the 'not qualified' CP harvest.

Source: ADF&G Fishtickets and NMFS Blend data, 1995 - 2001.

Staff considered calculating the average weekly catch of vessels that are designated as "qualified" in Table 3.22, to use that rate to determine the percentage of the TAC that each sector of cod endorsed vessels would harvest in the future. However, due to the temporal variations, this method would not result in an accurate portrayal of the no action alternative. The hook-and-line catcher processors generally start fishing on January 1, while many of the pot vessels are still fishing crab. The hook-and-line catcher vessels typically start fishing in January or February, but take much less of the overall TAC. While each year varies, the pot fleet

typically takes the majority of its cod harvest in March/April, and the <60' hook-and-line and pot fleet doesn't usually start fishing until April and continues into the summer. (See Section 3.3 for temporal catch by sector.) Thus, because each sector of the fixed gear fishery starts targeting BSAI Pacific cod at a different time of the year, one cannot use an average weekly rate for each sector to accurately reflect the percentage of cod each sector would harvest in the absence of distinct allocations.

In addition, the future impacts of crab rationalization on the pot effort in the BSAI Pacific cod fishery are unknown. The Council recently approved a plan for rationalizing the BSAI crab fisheries, which addresses all of the major crab fisheries including opilio, Bairdi, and Bristol Bay red king crab. While not yet approved by the Secretary of Commerce, implementation of this plan would create a voluntary cooperative program with 100 percent of the TAC allocated through harvest shares, eligibility for which would be determined by a set of qualifying years fishing for each species (NPFMC 2002). Many of the pot vessels with cod endorsements may receive crab harvest shares in the future through this program. A quota share program for BSAI crab will allow pot fishermen the flexibility to fish crab when they choose and eliminate the 'race for fish,' thus freeing up these vessels to fish groundfish, including cod, whenever they deem most optimal. This could serve to increase the cod effort by these vessels, although they still must have a cod endorsement to participate. In addition, a crab "buyback" program is in the process of being developed. Under this program, NMFS would buy LLP crab licenses and fishing privileges of a portion of the crab fleet. All fishing permits, fishery endorsements, and fishing histories associated with a particular crab vessel (or possible license holders) would be revoked. Thus, some owners of pot vessels with cod endorsements may choose to participate in the crab buyback program and consequently also reduce fishing capacity in the BSAI fixed gear cod fishery.

The discussion so far highlights some of the problems with selecting or simulating a baseline period by which to represent the 'no action' alternative (Alternative 1). The major problems include: 1) difficulty at this time in determining the exact number of vessels that may be eligible to fish BSAI Pacific cod with fixed gear in the future due to a substantial number of interim licenses, 2) the eligible fleet has changed since the current fixed gear split under Amendment 64 was implemented in mid-2000, and 3) the difficulty in determining the impact of the crab rationalization and/or buyback program on the fixed gear Pacific cod fleet.

Given the wide range of influences that could have a sizable effect on the effort in each sector of this fishery, attempts at specifying the no action alternative would be highly conjectural. It has already been noted that there is no fishing year that represents the fishery should no action be taken and the fixed gear allocations be allowed to expire. The historical data (1995 - 1999) closely reflects the current split which has been in place from mid-2000 to 2003, and yet the group of vessels whose history determined the split is not the same group of vessels that is eligible to fish BSAI Pacific cod starting in 2003. So neither the 1995 - 1999 fishery nor the 2000 - 2003 fishery represents the situation that would occur if no action was taken on this amendment and the allocations were allowed to expire. Because the no action alternative is affected by several dynamic elements, it is not appropriate to portray it as a static point of departure to compare against the other alternatives.

Because there is no fishing season that would represent the baseline, staff uses the sectoral catch distribution averaged over the 1995 - 1999 fishing seasons, bearing in mind that this represents a reasonable reference for how the fishery was operating in the most recent years without fixed gear allocations rather than a true projection of the no action alternative. The following distribution occurred among the fixed gear sectors on average during 1995 - 1999 (excluding quota reallocated from other gear sectors): hook-and-line catcher processors (81.6%), hook-and-line catcher vessels (0.3%), and pot vessels (18.1%). Hook-and-line and pot

vessels <60' accounted for 0.3% of the catcher vessel harvest. Within the pot sector during this time period, pot catcher processors harvested 4.4% and catcher vessels harvested 13.7% of the total fixed gear harvest on average.

While the impacts of the no action alternative cannot be quantified, some general, qualitative projections can be made. For instance, Table 3.16 shows that the longline catcher processors have traditionally harvested the majority (over 80%) of the fixed gear BSAI Pacific cod catch in the past seven years. The number of vessels estimated to be eligible to participate in the longline catcher processor Pacific cod fishery has not changed considerably under the cod endorsement requirements of Amendment 67 (40 catcher processors appear to be eligible). Table 3.22 shows that this core group of 40 vessels harvested an average of 98% of the total hook-and-line catcher processor cod harvest during 1995 - 2001, thus it is likely that effort in this fishery will be very similar compared to prior years.

Table 3.16 shows that the longline catcher vessels have traditionally had relatively small catch histories in the BSAI cod fisheries, and the <60' catcher vessels typically account for a substantial portion of the overall harvest. The hook-and-line sector as a whole has never harvested more than 0.7% of the fixed gear cod apportionment in any one year. The number of ≥60' vessels staff estimates to be eligible to participate in the fixed gear Pacific cod fishery in the long-term has decreased to 9 vessels under the cod endorsement requirements of Amendment 67 (as previously noted, six of those vessels are catcher processors that did not meet the criteria for a catcher processor endorsement but did meet the criteria for a catcher vessel endorsement).[28] As stated previously, the harvest of the 3 longline catcher vessels ≥60' that will receive a cod endorsement combined with the <60' vessels that participated, makes up about 97% of the overall BSAI Pacific cod hook-and-line harvest in 1995 - 1999 and about 83% during 2000 - 2001. It is thus likely that effort in this fishery will be comparable to prior years.

Similar issues may be considered for the pot sector. The pot sector overall has maintained an average of 18.1% of the total fixed gear BSAI Pacific cod harvest during 1995 - 1999, and this average increases slightly to 18.4% when 2000 and 2001 harvests are included. Given that the fixed gear split was implemented based on a recognized need to stabilize the fishery and protect the historical harvest shares realized by each fixed gear sector in the past, it is important to consider whether it is likely that the pot effort in the BSAI Pacific cod fishery would increase absent a fixed gear split. The trend has shown that the pot sector has increased its harvest share of Pacific cod starting in 1995 relative to previous years, but there is no evidence of a consistent upward increase in this sector's relative share each year during 1995 - 1999.

Since 2000, the fixed gear sectors have been constrained by the allocations established under Amendment 64. In 2000 and 2001, the pot sector harvested about 19.6% and 16.0% of the total BSAI Pacific cod harvest by fixed gear vessels, respectively. If reallocated quota is excluded, the pot sector harvested about 19.5% and 18.7% of the fixed gear harvest over the same time period. In addition, seasonal allocations for the pot sector recently implemented under the Steller sea lion management measures may make it more difficult for pot vessels to harvest their share of the TAC, as 40% of their quota is now restricted to the B season (Sept. 1 - Dec. 31). These measures have only been in place since 2001, thus, insufficient data are available by which to fully evaluate their potential impacts.

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[28]The criteria for a hook-and-line catcher processor cod endorsement is at least 270 mt of cod landings in the directed BSAI Pacific cod fishery (excluding discards) in any one of the years 1996 - 1999. The criteria for a hook-and-line catcher vessel ≥60' cod endorsement is at least 7.5 mt of cod landings in the directed BSAI Pacific cod fishery (excluding discards) in any one year 1995 - 1999.

In addition, the pot catcher vessel sector harvested a slightly higher percentage of the total pot sector harvest in 1999, 2000, and 2001 than in the past several years. On average during 1995-1999 (excluding rollovers), pot catcher vessels harvested about 75 - 76% of the BSAI Pacific cod harvested with pot gear, and pot catcher processors harvested the remaining 24 - 25%. In 1999, the distribution was 80% pot catcher vessels and 20% pot catcher processors. In 2000, the distribution was about 87% pot catcher vessels and 13% pot catcher processors, and in 2001, the distribution was about 86% pot catcher vessels and 14% pot catcher processors. As mentioned previously, a delayed opilio opening may have contributed to a higher number of catcher vessel participants in 2000.[29] A total of 113 pot catcher vessels participated in the BSAI directed Pacific cod fishery in 2000, the greatest number of individual vessels since 1995. In 2001, the crab fishery began in January but was also relatively short. The number of unique catcher vessels in the cod fishery was 75, which is more consistent with previous years and less than the seven-year average of 92.

Recall also that the number of pot catcher vessels that staff estimates will be eligible to participate in the Pacific cod fishery has decreased considerably to 57 vessels under the cod endorsement requirements of Amendment 67 (three of those vessels are catcher processors that did not meet the criteria for a catcher processor endorsement but did meet the criteria for a catcher vessel endorsement).[30] The number of eligible pot catcher processors is estimated at 6. Thus, while in 2003 NMFS has issued cod endorsements for use on 82 pot catcher vessel and 11 pot catcher processor licenses, staff estimates closer to 57 pot catcher vessels and 6 pot catcher processors will remain eligible in the long-term. Eleven of those 57 catcher vessels have interim licenses, thus, 57 may be considered a high estimate. With the reduced number of eligible catcher vessels, it is difficult to project whether the no action alternative would result in a distribution to pot catcher vessels close to the 1995 - 1999 average of 75 - 76% of the total pot harvest or continue to result in a slight increase to pot catcher vessels as occurred in 2000 and 2001. Note that from Table 3.22, the 54 eligible pot *catcher* vessels accounted for 80% of the total pot catcher vessel harvest during 1995 - 1999 and 60% during 2000 - 2001. Similarly, the 6 eligible catcher processors accounted for 76% of the total pot catcher processor harvest during 1995 - 1999 and 68% during 2000 - 2001. Thus, because these vessels represent the core group of harvesters from each sector, we may expect the pot catcher vessel sector to maintain its increased harvest level.

Finally, the <60' catcher vessel fleet harvested an average of almost 0.3% of the BSAI Pacific cod quota prior to the allocations (1995 - 1999) being established under Amendment 64. The Council provided a 1.4% allocation to this sector under Amendment 64, in order to allow for growth in the cod fishery for those using smaller vessels. The Council also stated its intent that the status quo alternative includes the following methods for allocating BSAI Pacific cod: (1) bycatch of Pacific cod in other fixed gear fisheries will continue to be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set; and (2) harvests by pot and/or hook-and-line catcher vessels <60' LOA only accrue against the 1.4% allocation when the Pacific cod fishery for all vessels using pot gear or catcher vessels using hook-and-line gear, respectively, are closed, (i.e., when the pot fleet and hook-and-line catcher vessel fleet cannot fish their

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[29] A shorter opilio fishery may lead to more effort in the cod fishery by pot catcher vessels, as many members of the opilio fleet have historically entered the Pacific cod fishery after the crab season closed. There are a number of smaller vessels in this sector that are dependent on cod as a secondary fishery, and a shorter and/or delayed crab season, like the ones experienced in 1999, 2000, and 2001, allows those vessels to enter the cod fishery earlier in the year.

[30] The criteria for a pot catcher processor cod endorsement is at least 300,000 lbs of cod landings in the directed BSAI Pacific cod fishery (excluding discards) in each of any two years 1995 - 1998. The criteria for a pot catcher vessel ≥60' cod endorsement is at least 100,000 lbs of cod landings in the directed BSAI Pacific cod fishery (excluding discards) in each of any two years 1995 - 1999.

18.3 percent and 0.3 percent set-asides, respectively.) Managing the allocations in this manner ensures that the smaller catcher vessels have cod available even after the larger catcher vessels in their sector have taken their allocation.[31] Given that the <60' sector harvested less than 0.3% prior to its having a distinct allocation and about the same number of <60' vessels have been participating recently, it is unlikely that the small boat sector would maintain its harvest of 1.4% of the fixed gear Pacific cod catch without a direct allocation of BSAI Pacific cod. Preliminary data indicate that 5 pot catcher vessels and 14 hook-and-line catcher vessels less than 60' participated in the 2002 BSAI Pacific cod fishery, which is consistent with the seven-year average (5 pot and 17 hook-and-line catcher vessels) during 1995 - 2001. Recall, however, that the number of catcher vessels <60' is not limited by Amendment 67, thus this sector could potentially realize new and increased effort in the future. As of April 2003, 125 catcher vessels <60' hold BSAI non-trawl LLP licenses and are thus eligible to participate in this fishery.

Related to the vessels' smaller size and fishing capacity is the fact that most smaller vessels would rather fish for groundfish in the BSAI in the spring and summer months when weather conditions are better. Currently, hook-and-line and pot catcher vessels <60' in the BSAI Pacific cod fishery are not subject to seasonal apportionments. In 2002, for example, the fixed gear vessels <60' did not start fishing BSAI Pacific cod until about mid-April, while the hook-and-line catcher processors starting fishing in early January. The hook-and-line catcher processor and the pot cod fisheries closed on March 8 and March 16, respectively, as each sector reached it's A season TAC. By regulation, the B season for directed fishing for cod in each sector does not reopen until August 15 and September 1, respectively. Thus, without a direct allocation, the smaller fixed gear vessels would likely have to compete with the larger vessels in the winter (January - March), when weather conditions are not optimal, or in the fall, when the cod are less aggregated and the weather is starting to get worse. While the <60' sector is the only fixed gear sector that is not required to have a Pacific cod endorsement, the number of <60' vessels participating in the BSAI Pacific cod fishery has been fairly low and stable in recent years (see Table 3.16). Thus, more important than the number of potentially eligible <60' vessels may be the issue of temporal variation in the fisheries and the notion that the <60' fleet would not likely enter the fishery early enough to take advantage of the A season TAC under the no action alternative.

Overall, if no distinct allocations are made among the hook-and-line catcher processors, hook-and-line catcher vessels, catcher vessels <60', and pot vessels beyond 2003, each sector would need to compete with the others to maintain its historical harvest level. This likely means that, due to the temporal variations in each sector of the fishery discussed previously, hook-and-line catcher vessels and pot vessels would need to enter the Pacific cod fishery earlier in the year than is typical, in order to compete with the hook-and-line catcher processor sector. Pot vessels would need to choose between fishing opilio or Pacific cod in January, and the smaller catcher vessels would need to enter the fishery in the winter, when the weather is less desirable, or possibly forego their historical level of cod harvest.

However, the vessels in each sector could choose to continue to fish during the same time of year as they have under the fixed gear allocations, with the hook-and-line catcher processors starting in January and every other sector starting a month to several months later. Under this scenario, the hook-and-line catcher processor sector may be able to fish longer, off of the larger fixed gear (51%) allocation, and every other gear sector would fish a shorter season than is typical. In this case, since the hook-and-line catcher processors have taken in excess of 80% of the fixed gear Pacific cod TAC in previous years, and typically have harvested the A

[31] In 2002, the general longline catcher vessel fishery lasted longer than the pot fishery, thus, the smaller pot catcher vessels harvested the 1.4 percent allocation before the longline catcher vessels <60' had an opportunity to harvest any of the 1.4 percent allocation.

season TAC by mid to late March, there may be very little TAC left for other sectors entering the fishery in late February or March. It is also possible that the entire A season fixed gear TAC would be fully prosecuted by April, when the <60' fleet typically enters the BSAI Pacific cod fishery. An alternative perspective is that if the no action alternative is selected and there is not a fixed gear split, the hook-and-line catcher processors are at a greater risk of losing catch share in future years, simply because they have accounted for the great majority of the fixed gear catch in the past.

Overall, given that the pot cod sector and the <60' sector have higher CPUEs in the early spring and summer, and the weather is typically worse in the fall season, one may assume that the no action alternative would likely result in a much more competitive A season for BSAI Pacific cod. This is because there are few alternative fisheries available to these vessels and the vessels that are eligible to fish Pacific cod in 2003 and beyond have met a participation threshold designating a level of 'dependence' on the fishery. The assumption is that Pacific cod have comprised a significant or critical portion of the overall revenues of these vessels, which they would not easily make up for in other fisheries (see Section 4.3.4). In addition, it is relatively more difficult for pot vessels to harvest BSAI Pacific cod in the fall season, to which 40% of the TAC is designated, thus there will be increased incentive for pot cod fishermen to target the A season. Given these factors, it is likely that, absent a fixed gear split, the race for fish will be exacerbated in the A season. It is also likely that the B season would continue to be largely dominated by the hook-and-line catcher processor sector.

In sum, given that there is no fishing year that represents the baseline scenario and several dynamic factors will influence future effort in the BSAI Pacific cod fishery, it is difficult to project whether the no action alternative would result in a distribution to vessels close to the 1995-1999 average. Recognizing that none of the data for previous years is an accurate representation of the no action alternative, the average harvest during 1995 - 1999 is provided in the document only as a baseline for comparison. Overall, a qualitative review of Alternative 1 indicates that it may not mitigate the concerns expressed in the problem statements related to protecting the historical harvest shares of the fixed gear sectors (longline vessels or pot catcher processors) who have made significant long-term investments, have extensive catch histories, and are significantly dependent on the BSAI cod fisheries.

While it is not possible, given available data, to empirically quantify all of the probable economic and operational impacts of Alternative 1, its adoption will assuredly impose a number of costs on these fixed gear fleets. An intensified "race-for-fish," resulting from a combined fixed gear cod TAC, will exacerbate all of the well known operating inefficiencies associated with this form of fisheries management (e.g., increased variable costs; waste; reduced product quality; reduced net revenues; compressed supply availability to the marketplace; intensified pulsed demand on processing capacity; and shortened fishery openings, imposing increased staging, transportation, and logistical costs, etc.).

Further, Alternative 1 will likely result in these adverse effects being disproportionally imposed on the smaller, less operationally capable segments of the fixed gear fleets. It may also induce these same small operations to assume additional risk, such as operating earlier or later in the fishing year, when sea and weather conditions are more extreme, or fishing faster, harder, and longer than they are reasonably capable of sustaining. Amendment 1 may induce smaller operators to venture farther from port, and/or farther offshore than they would otherwise choose to fish, in order to acquire their share of the BSAI Pacific cod TAC. Any and all of these factors may result in greater wear and tear on vessels, equipment, and crew, increased damage and loss of vessels and fixed fishing gear, and associated safety concerns.

3.4.2 Alternative 2: Status quo (preferred alternative)

Alternative 2 would continue the current BSAI Pacific cod allocations among the fixed gear sectors as originally effective (since September 2000) under BSAI Amendment 64:

- 80% hook-and-line catcher processors
- 0.3% hook-and-line catcher vessels
- 1.4% pot or hook-and-line catcher vessels <60'
- 18.3% pot vessels

In addition, the following three options are provided for consideration under Alternative 2 to address quota that is reallocated from other gear sectors:

Option 1: Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet. **(preferred alternative)**

Option 2: Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors. **(preferred alternative for trawl sector reallocations)**

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40% **(preferred alternative)**

Finally, the following two options are provided regarding a sunset provision:

Option 1: No sunset provision **(preferred alternative)**
Option 2: Sunset 5 years after implementation

This section of the document addresses the allocations as proposed under Alternative 2. The rollover options and the sunset provisions are addressed later in the document under the comparison of alternatives in Section 3.4.4.

The allocations under Alternative 2 mirror the allocations provided for in BSAI Amendment 64, which were roughly based on the actual harvest distribution among the fixed gear sectors during 1995 - 1998. (The data for 1999 was considered preliminary at the time of Council action.) Under these allocations and using the 2003 TAC,[32] the allocations are as follows:

hook-and-line catcher processors	**80%**	**(77,910 mt)**
hook-and-line catcher vessels	**0.3%**	**(292 mt)**
pot vessels	**18.3%**	**(17,822 mt)**
hook-and-line and pot vessels <60'	**1.4%**	**(1,363 mt)**

The actual average Pacific cod harvest by sector during 1995 - 1998 (excluding quota reallocated from other gear sectors) is as follows: hook-and-line catcher processors - 81.6%, hook-and-line catcher vessels - 0.3%, and pot vessels - 18.1%. The hook-and-line and pot catcher vessels <60' harvested almost 0.3% of the total fixed gear Pacific cod catch during this time period. Thus, under Amendment 64, the hook-and-line catcher processor allocation was established about 1.6% lower than that sector's actual average harvest during 1995 - 1998. This reduction was primarily used to provide for a 1.4% allocation to catcher vessels <60' using fixed gear.

Alternative 2 would continue the allocations established under Amendment 64. This means that the hook-and-line catcher processors would be allocated about 1.6 percentage points, or 1,558 mt using the 2003 TAC, less than they historically harvested on average during 1995 - 1999 (excluding rollovers), with the reduction in quota being allocated primarily to catcher vessels <60'. The pot sector and the <60' sector would receive 0.2 and 1.1 percentage points more than they historically harvested during 1995 - 1999, respectively. This equates to an additional 195 mt and 1,071 mt, using the 2003 TAC, respectively. The hook-and-line catcher vessels ≥60' would receive approximately the same share (0.3%) as they historically harvested over this time period. Recall that Alternative 3, which is discussed in the following section, proposes using the average harvest over 1995 - 1999 to determine the allocation scheme. A comparison of the distribution of cod quota and projected ex-vessel revenues resulting from cod harvests under Alternatives 1- 3 is provided in Section 3.4.4.

Included in the status quo alternative is the assumption that the following provision in BSAI Amendment 64 also applies: bycatch of Pacific cod in other fixed gear fisheries would be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set. Information on Pacific cod bycatch in the fixed gear groundfish fisheries can be obtained from the NMFS Blend data files. Table 3.23 reports the fixed gear bycatch of Pacific cod in the groundfish target fisheries (this excludes the catch of Pacific cod in the directed cod fishery). The directed hook-and-line sablefish fishery accounted for the majority of the bycatch in 1995 and 1996. After 1996, the largest amounts of cod bycatch by hook-and-line catcher processors were taken in the Greenland turbot fishery, but for the catcher vessels the sablefish fishery continues to result in the largest amounts of cod bycatch (M. Furuness, pers. comm.).

[32]The 2003 BSAI Pacific cod TAC is 207,500 mt. Accounting for a 7.5% allocation to the CDQ groups, the revised BSAI Pacific cod TAC is 191,937 mt. The fixed gear share (51%) is 97,388 mt (accounting for a 500 mt incidental catch allowance for bycatch of cod in other fixed gear groundfish fisheries).

Table 3.23: Pacific cod bycatch (mt) in the fixed gear groundfish target fisheries

Year	Longline			Pot		
	CP	CV	Total	CP	CV	Total
1995	195	1,283	1,478	-	1	1
1996	181	59	240	12	1	13
1997	85	52	137	-	-	-
1998	152	30	182	-	0	0
1999	148	77	225	1	1	2
2000	199	109	308	0	0	0
2001	132	91	223	-	7	7
TOTAL	1,092	1,701	2,793	13	10	23

Source: NMFS, AK region Blend data sets, 1995 - 2001.

Two major sources of Pacific cod bycatch are not completely reflected in Table 3.23. First, bycatch of Pacific cod in the halibut IFQ fishery is not always included. Management measures currently in place do not adequately collect bycatch information from the halibut fishery to make accurate projections of total Pacific cod removals. NMFS inseason managers receive some reports of Pacific cod bycatch in the halibut fisheries, but not likely all of it. Therefore, it is not possible at this time to estimate the Pacific cod mortality in that fishery. The second source of cod bycatch is in the crab fisheries. Estimates were reported in Section 3.3.8 that indicate about 5,000 mt of Pacific cod may have been harvested for bait in the 1996 - 1997 crab fisheries and not reported. Given that the crab fisheries have been much smaller recently when compared with 1996 -1997, it is likely that the bait removals are also much reduced. However, a substantial reduction would still allow room for unreported bait removals that are larger than the bycatch levels reported in Table 3.23 (NPFMC, 2000b). NMFS reports that it is also likely that some Pacific cod is being used as bait in the crab fisheries but is being reported as 'targeted' Pacific cod (M. Furuness, pers. comm.). Thus, it is likely that some level of Pacific cod harvested for bait in the crab fisheries is being accounted for and attributed to the directed Pacific cod fishery.

The preamble to the final rule for Amendment 64 states that the total amount of incidental catch allowance in the crab and Pacific halibut fisheries likely exceeds several thousand metric tons based on: 1) anecdotal information on the amount of incidentally caught cod used as bait in the crab fisheries, 2) the fact that the halibut fishery during the summer months typically occurs in relatively shallow waters where cod are prevalent, and 3) assumptions on the amount of gear deployed and incidental catch rates. In the absence of the quantitative data needed to estimate incidental catch of cod in the halibut and crab fisheries, NMFS intended to estimate the incidental catch allowance only on the basis of incidental catch estimated for the non-Pacific cod fixed gear groundfish fisheries (*Federal Register* Vol. 65, No. 165, p. 51554-51555).

Since 2000, NMFS has deducted 500 mt as incidental catch allowance of Pacific cod in other groundfish fixed gear fisheries off the top of the fixed gear cod allocations, as prescribed under Amendment 64. This is about twice the amount of Pacific cod that was reported caught incidentally in the fixed gear groundfish fisheries in any year since 1996. Note that this method allows for estimates of incidental catch to come off the top of the fixed gear sector's total allocation (51 percent of the BSAI cod TAC) and then each sector receives its mandated allocation of the TAC remaining for the directed fishery.

Taking relatively modest projected bycatch off the top of the fixed gear allocation is expected to continue to cause only very small differences between actual harvest percentages and the allocation percentages identified under this alternative for the directed fisheries. Until improved estimates of incidental catch amounts in these fisheries are available, NMFS' stock assessment scientists believe that the level of cod mortality in the Pacific halibut and crab fisheries does not pose significant concerns for overfishing or sustainable resource management of the Pacific cod resource, given the conservative management of this species under the FMP (S.Salveson, pers. comm.). Recent harvest specifications for 2002 and 2003 have set the TAC at 10 percent and 7 percent lower than the ABC, respectively.

3.4.3 Alternative 3: Modified status quo

Alternative 3 would modify the current BSAI Pacific cod allocations among the fixed gear sectors according to catch histories to be determined as a percentage of cumulative catches of BSAI Pacific cod by gear type for 1995 - 1999. **Option 1 would include a 1.4% allocation to pot and hook-and-line catcher vessels <60', to be subtracted from the overall fixed gear allocation before the split is made.**

In addition, the same three options proposed under Alternative 2 to address quota reallocated from other gear sectors are provided for consideration under Alternative 3.

Rollover Options:

Option 1: Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Option 2: Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Option 3: Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:

Suboption:
- (a) 25% - 25% - 25% - 25%
- (b) 50% - 30% - 15% - 5%
- (c) 33.3% - 33.3% - 33.3%
- (d) 60% - 25% - 15%
- (e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
- (f) 40% - 20% - 40%

Finally, the following two options are also provided regarding a sunset provision:

Option 1: No sunset provision
Option 2: Sunset 5 years after implementation

This section of the document addresses the fixed gear allocations as proposed under Alternative 3. The rollover options and the sunset provisions are addressed later in the document under the comparison of alternatives in Section 3.4.4.

The original fixed gear split under Amendment 64 was calculated excluding roll-over amounts, and this amendment comports with that intent. The 1995 - 1999 harvest data, excluding reallocated quota from other gear sectors, is used to calculate the general fixed gear allocation percentages under Alternative 3 and provided in Table 3.24 below. Percentage allocations are calculated by summing the catch of each sector during 1995 - 1999 and dividing that amount by the total catch in the fixed gear sector. **Note that the actual harvest distribution among sectors is the same when calculated during the years 1995 - 1998 or 1995 - 1999. However, because the original allocations under Amendment 64 were not based exactly on the actual harvest distribution from 1995 - 1998, the allocations would differ under Alternatives 2 and 3.**

Table 3.24: Distribution of Pacific cod catch (mt) among the fixed gear sectors, average 1995 - 1999

GEAR	Average catch (mt)/year	%	Average number of vessels/year	Average catch (mt)/vessel
Hook-and-line CPs	90,188	81.6%	39	2,313
Hook-and-line CVs	271	0.3%	18	15
Pot CPs	4,849	4.4%	10	485
Pot CVs	15,173	13.7%	87	174
TOTAL fixed gear[1]	110,481	100.0%	154	717

Source: ADF&G fishtickets and NMFS blend data 1995-99, excludes roll-over harvest

[1]The <60' average catch (300 mt) is included in the totals for the hook-and-line CV and pot CV categories.

The average number of vessels participating in the fishery and the average catch per vessel during 1995 - 1999 are also reported in Table 3.24. Hook-and-line catcher processor vessels accounted for the largest average catch per year (90,188 mt) during 1995 - 1999 and had the largest average catch per vessel at 2,313 mt. This sector accounted for 81.6 percent of the fixed gear catch on average during 1995 - 1999. The hook-and-line catcher vessels accounted for 0.3% of the total Pacific cod fixed gear catch, with the average catch per vessel about 15 mt.

The pot catcher vessels accounted for 13.7% and pot catcher processors accounted for 4.4%, thus the pot vessel sector as a whole harvested about 18.1% of the fixed gear share of the BSAI Pacific cod TAC on average during 1995 - 1999 (excluding rollover harvests). The average catch per vessel for each pot sector was 174 mt and 485 mt, respectively. Recall that Alternative 3 only addresses a split among the hook-and-line catcher processors, hook-and-line catcher vessels, and the pot sector as a whole, with an option to establish a separate allocation for fixed gear vessels <60' LOA. (A split between the pot catcher processor and pot catcher vessel sectors is proposed under Alternative 4 and will be discussed in detail in that section.)

The <60' hook-and-line and pot sector harvested an average of 300 mt per year, or 0.3% of the total fixed gear harvest, and averaged about 17 mt per vessel during 1995 - 1999. This harvest is included in the harvest totals attributed to hook-and-line catcher vessels (0.3%) and pot catcher vessels (18.1%) in Table 3.24. **The Council may choose to make a separate allocation to the <60' sector, but it is not implicit under Alternative 3. Thus, the allocations are calculated both including and excluding a separate allocation to <60' catcher vessels.** If the Council prefers not to make a separate allocation to <60' vessels under Alternative 3, those vessels could fish off the catcher vessel allocations for their specific gear type, respectively. Under Alternative 3, absent a distinct allocation to the <60' sector, the allocations to each fixed gear sector would be as follows:

- **81.6% hook-and-line catcher processors**
- **0.3% hook-and-line catcher vessels**
- **18.1% pot vessels**

The Council may alternatively choose to make a separate allocation to <60' hook-and-line and pot catcher vessels, based on this sector's relative catch from 1995 - 1999 (Table 3.25). The total harvest by the <60' sector during this time period was 1,498 mt. About 60% (900 mt) of that catch was harvested with hook-and-line gear and 40% (598 mt) with pot gear. Accounting for the <60' catcher vessel harvest separately would decrease the hook-and-line catcher vessel allocation to 0.1% and the pot vessel allocation to 18.0%.

Table 3.25: Distribution of Pacific cod catch (mt) among the fixed gear sectors, including the <60' sector, average 1995 - 1999

GEAR	Average catch (mt)/year	%	Average number of vessels/year	Average catch (mt)/vessel
Hook-and-line CPs	90,188	81.6%	39	2,313
Hook-and-line CVs	91	0.1%	6	15
Pot CPs	4,849	4.4%	10	485
Pot CVs	15,054	13.6%	81	186
<60 H&L and Pot CVs	300	0.3%	18	17
TOTAL fixed gear	110,482	100.0%	154	717

Source: ADF&G fishtickets and NMFS blend data 1995-99, excludes rollover harvest.

Thus, should fixed gear allocations be set which include a separate allocation for hook-and-line and pot catcher vessels <60' based on 1995 - 1999 harvests, the allocations would be modified as follows:

- **81.6% hook-and-line catcher processors**
- **0.1% hook-and-line catcher vessels**
- **18.0% pot vessels**
- **0.3% pot or hook-and-line catcher vessels <60'**

If a separate allocation is not made for the <60' fleet, the hook-and-line catcher processors would receive an increase of about 1.6 percentage points in their allocation under Alternative 3 compared to the status quo (Alternative 2). Using the 2003 fixed gear TAC of 97,388 mt, this represents a 1,558 mt increase. The pot sector would receive a reduction of 0.2 percentage points (195 mt) in their overall allocation under this scenario, compared to the status quo. The hook-and-line catcher vessels would receive the same allocation (0.3%) under Alternative 2 as they would under Alternative 3.

Should a separate allocation be established for the <60' sector based on the average 1995 - 1999 harvest distribution, the hook-and-line catcher vessels and pot vessels would receive 0.2 and 0.3 fewer percentage points than under Alternative 2, respectively. Because Amendment 64 provides for a 1.4% allocation to catcher vessels <60' using fixed gear, the <60' sector would receive 1.1 fewer percentage points under Alternative 3 compared to the status quo, a reduction of 1,071 mt using the 2003 BSAI Pacific cod TAC. Because each sector's allocation is based on its actual relative harvest from 1995 - 1999, this scenario assumes that the allocations would be managed such that each sector could only fish off of its own allocation. In effect, the hook-and-line and pot catcher vessels <60' would not fish off the general allocation for hook-and-line catcher vessels and/or pot vessels at any time. The hook-and-line catcher processor allocation is unaffected by this decision point.

The two sets of allocations outlined above are the result of two different ways of establishing fixed gear allocations under Alternative 3. However, the following option is also provided under Alternative 3 to explicitly address the <60' hook-and-line and pot catcher vessel sector:

Option 1: **Include a 1.4% allocation to pot and hook-and-line catcher vessels <60', to be subtracted from the overall fixed gear allocation before the split is made.**

The allocation of 1.4% was proposed as a separate option under Alternative 3 in order to mirror what the small boat fleet has received in the past three years under Amendment 64. Recall that Amendment 64 based the fixed gear allocations roughly on the average catch distribution from 1995 - 1998, and the <60' fleet only harvested about 0.29 % of the total during that time period. Under Amendment 64 (and Alternative 2) the small boat allocation resulted in a 1.4% reduction to the hook-and-line catcher processor sector's allocation compared to what this sector had harvested on average during this time period.

Under Alternative 3, Option 1, because the 1.4% is taken off the top, each of the other fixed gear sectors realizes a proportionate decrease in their cod allocations. Thus, while under Alternative 2, the <60' allocation is taken from the hook-and-line catcher processors' historical share (-1.4%), Alternative 3, Option 1 results in a reduction to the allocations of each fixed gear sector proportional to their overall allocation. Effectively, the hook-and-line catcher processor and pot sectors would be allocated 1.1% and 0.3% fewer percentage points, respectively, compared to these sectors' actual average harvests in 1995 - 1999.

Under Alternative 3, Option 1, the allocations to each fixed gear sector would be as follows:

- **80.5% hook-and-line catcher processors**
- **0.3% hook-and-line catcher vessels**
- **17.8% pot vessels**
- **1.4% pot or hook-and-line catcher vessels <60'**

Alternative 3 could thus have very different impacts on the <60' sector, given the various ways of implementing Alternative 3 and/or the selection of Option 1. Table 3.26 shows the allocation scenarios and projected catch for each sector under the variations of Alternative 3. Consistent with previous determinations, roll-overs from the trawl and jig gear apportionments are not included. The table shows that Alternative 3 could result in not having a separate allocation for the <60' hook-and-line and pot catcher vessel sector, or an allocation to that sector could be based on the actual 1995 - 1999 harvest distribution attributed to the <60' vessels (0.3%). Under Option 1, the <60' sector would receive a 1.4% allocation, the same percentage established under Amendment 64 in 2000.

The impact of this alternative on the <60' sector may be fairly substantial relative to its current allocation, while the other fixed gear sectors would only be slightly affected compared to the status quo. The pot sector's allocation, depending on the variation of Alternative 3 selected (see Table 3.26), varies by about 0.3 percentage points (292 mt using the 2003 TAC). The hook-and-line catcher processor sector's allocation varies by a maximum of 1.1 percentage points (1,071 mt using the 2003 TAC), which represents an increase in the current allocation to this sector. The hook-and-line catcher vessel sector would maintain its current allocation under all variations of Alternative 3, except for the one in which the <60' harvest is separated to form a distinct allocation for <60' vessels based on the actual 1995 - 1999 harvest. In that case, the hook-and-

line catcher vessel sector would realize a reduction of 0.2 percentage points, or two-thirds of its current allocation (195 mt using the 2003 TAC). However, recall that the majority of the hook-and-line catcher vessel fleet is comprised of <60' vessels, and these smaller vessels have accounted for about 67% of the total hook-and-line catcher vessel harvest on average during 1995 - 1999 and 70% during 2000 - 2001. Thus, the net effect of this variation of Alternative 3 on the ≥60' hook-and-line catcher vessel fleet is much reduced

Table 3.26: Proposed BSAI Pacific cod fixed gear allocations under Alternative 3 and Option 1[1]

GEAR	Alternative 3 (no <60' allocation)		Alternative 3 (with <60' allocation)		Alternative 3, Option 1	
	Projected catch (2003 TAC)	Allocation (%)	Projected catch (2003 TAC)	Allocation (%)	Projected catch (2003 TAC)	Allocation (%)
Hook-and-line CPs	79,469	81.6%	79,469	81.6%	78,397	80.5%
Hook-and-line CVs	292	0.3%	97	0.1%	292	0.3%
Pot Vessels	17,627	18.1%	17,530	18.0%	17,335	17.8%
<60 H&L and Pot CVs	0	0.0%	292	0.3%	1,363	1.4%
TOTAL fixed gear	97,388	100.0%	97,388	100.0%	97,388	100.0%

Source: ADF&G fishtickets and NMFS blend data 1995-99.

Note: The projected catch is based on the 2003 BSAI Pacific cod TAC of 207,500 mt. The fixed gear share is 97,388 mt (51% and including a 500 mt incidental catch allowance).

[1]Option 1 under Alternative 3 provides for 1.4% of the total fixed gear cod allocation to <60' hook-and-line and pot catcher vessels. The 1.4% is subtracted from the overall fixed gear allocation and the remainder of the quota is allocated to each gear sector based on the average catch distribution from 1995 - 1999 (excluding rollover catch).

due to the fact that the <60' hook-and-line sector would not be fishing off that allocation at any point.

Should a separate allocation not be established for the <60' sector, one may expect impacts similar to those described under the no action alternative in Section 3.4.1. While the <60' catcher vessels would be eligible to fish off of the general catcher vessel allocations for their respective gear types, the competition with larger vessels for a limited quota and variation in fishing times may result in a much reduced catch by the small boat sector. Recall that during 1995 - 1999, the <60' sector harvested about 0.3% of the overall fixed gear cod catch. Since this sector received a distinct allocation in mid-2000, it has increased its percentage of the overall harvest (excluding rollovers) to 0.8% in 2001 and harvested its entire 1.4% allocation in 2002.

The harvest from the <60' hook-and-line catcher vessels comprised about 60% of the total hook-and-line catcher vessel harvest during 1995 - 1999, and one may expect a similar effect under this scenario. Sixty percent of the hook-and-line catcher vessel allocation (0.3%) represents about 175 mt using the 2003 TAC. The harvest from the <60' pot catcher vessels comprised about 0.8% of the total pot vessel harvest during 1995 - 1999. Using the 2003 TAC, 0.8% of the total pot allocation (18.1%) under Alternative 3 represents about 141 mt. Combined, the total <60' catch was about 0.3% of the fixed gear catch during 1995 - 1999. Using the 2003 TAC, that equates to 292 mt. This represents about 1.1 fewer percentage points than the status quo alternative in which the <60' sector receives 1.4% of the entire fixed gear TAC (1,363 mt in 2003).

As discussed previously under Alternative 1, the <60' sector took its entire allocation for the first time in 2002, and anecdotal evidence and public testimony indicate that this sector is capable of harvesting additional cod quota. Given that the Council originally provided for a 1.4% allocation in Amendment 64 in 1999 in order to allow for growth in the small boat Pacific cod fishery, it may want to consider whether the policy objectives stated in 1999 to support a small boat allocation have since changed. If the Council wants

to continue to provide for growth in the <60' sector, Alternative 3 without the application of Option 1 does not appear to sufficiently meet that objective. Applying Option 1 under Alternative 3 also would not enhance the opportunity in the Pacific cod fishery for the small boat sector, but it would maintain and protect the level of harvest the <60' sector currently sustains under BSAI Amendment 64. There are several options provided for in the 'rollover options' under both Alternative 2 and Alternative 3 which would potentially enhance the existing opportunity provided for the <60' hook-and-line and pot catcher vessels if it is determined to be an appropriate policy objective.

Further comparison of the resulting allocations and the projected change in ex-vessel and first wholesale revenue under Alternatives 1- 3 is presented in Section 3.4.4.

Impacts of Including Pacific cod Rollovers

As stated previously, the original fixed gear allocations under Amendment 64 were determined excluding reallocated quota (rollovers), and this amendment has maintained consistency with the original intent. The allocations under Alternative 3 are based on the actual harvest distributions (1995 - 1999) excluding quota reallocated from other gear sectors. (Rollover amounts during 1995 - 1999 provided in Table 3.6.) However, staff did review the impact of including reallocated quota on the fixed gear allocations. Including reallocated quota from the trawl and jig sectors would reduce the percentage of catch harvested by the pot sector by about 0.5 percentage points (487 mt using the 2003 TAC) and increase the percentage of catch harvested by the hook-and-line catcher processor sector by that same amount. This is likely due to two factors. First, many of the pot vessels leave the cod fishery to harvest crab before the roll-over portion of the TAC is harvested. Second, Pacific cod are generally more dispersed from late summer through early winter, when compared to spring spawning aggregations. Using pot gear to harvest cod is more difficult and likely less profitable when the fish are less aggregated. Both of these factors likely contribute to the lower relative catch by pot vessels later in the year.

3.4.4 Comparison of Alternatives 1 - 3

Table 3.27 shows the fixed gear allocations that would be established under Alternatives 1- 3. This section does not attempt to account for future rollover amounts. The options for reallocating quota are analyzed in a subsequent section, including information on how reallocated quota under the options would affect the revenue projections provided in this section under Alternatives 2 or 3.

Alternative 1 would not establish separate allocations to each sector, but the fixed gear sector as a whole would continue to be allocated 51% of the BSAI Pacific cod TAC. The allocations proposed under Alternative 2 and Alternative 3 are not substantially different for any sector, with the possible exception of the <60' fleet. **Recall that the actual catch distribution among hook-and-line catcher processors, hook-and-line catcher vessels, and pot vessels does not change whether 1995 - 1998 or 1995 - 1999 harvest data are used.** Neither does the addition of 1999 data change the relative harvest of the <60' catcher vessel sector. The differences in the allocations under Alternative 2 and 3 are due to the fact that the status quo allocations (Alternative 2) were based roughly on 1995 - 1998 harvests, and the hook-and-line catcher processor's allotment was decreased slightly to provide a small boat allocation of 1.4%.

The allocations to the hook-and-line catcher processor and pot sectors do not change substantially under Alternative 2 versus Alternative 3, varying by 1.6 (1,558 mt) and 0.5 (487 mt) percentage points, respectively, using the 2003 TAC. The hook-and-line catcher vessel sector's allocation of 0.3% would not change under Alternative 3, unless a variation of Alternative 3 was selected in which the <60' sector received a separate allocation based on the actual harvest distribution from 1995 - 1999. Because about 60% of the

Table 3.27: Fixed gear allocations proposed under Alternatives 1 - 3

Gear	Percentage allocations				
	Alt. 1	Alt. 2 (status quo)	Alt. 3 (no <60' allocation)	Alt. 3 (with <60' allocation)	Alt. 3, Option 1
Hook-and-line CPs	n/a	80.0%	81.6%	81.6%	80.5%
Hook-and-line CVs	n/a	0.3%	0.3%	0.1%	0.3%
Pot Vessels	n/a	18.3%	18.1%	18.0%	17.8%
<60 H&L and Pot CVs	n/a	1.4%	n/a	0.3%	1.4%
TOTAL fixed gear	100%	100%	100.0%	100.0%	100.0%

Note: Option 1 under Alt. 3 allows for a 1.4% to be taken off the top of the fixed gear BSAI P.cod TAC and allocated to catcher vessels <60'.

hook-and-line catcher vessel sector's total harvest in 1995 - 1999 was taken by <60' vessels, their allocation would be reduced by 0.2%. This represents only about 195 mt in 2003, but two-thirds of this sector's overall allotment. However, should this variation of Alternative 3 be selected, it is assumed that the <60' hook-and-line catcher vessels' catch would only be attributed to their distinct allocation and the <60' sector would not be able to fish off the allocation to the hook-and-line catcher vessels ≥60'. The same scenario would apply to the pot sector. This is different from how these sector's allocations are managed currently.

The <60' sector could realize a substantial difference in its allocation under Alternative 3 compared to Alternative 2, unless Option 1 is also selected to continue to provide for a 1.4% allocation to this sector. Among all of the variations of the alternatives, the <60' sector's allotment could vary from 0 - 1.4% (1,363 mt in 2003). During 1995 - 1999, however, the <60' sector harvested about 0.3% of the overall fixed gear cod catch, thus, even without a distinct allocation, one may expect that level of harvest to continue. Note that while the <60' sector would receive 1.4% under either Alternative 2 or Alternative 3, Option 1, the allocations to the freezer longliners and pot vessels do vary slightly. This is because under Alternative 2 (status quo) the small boat allocation comes entirely from the freezer longliner's allotment, while under Alternative 3, Option 1, the small boat allocation is taken off the top of the fixed gear TAC, prior to the split being made (i.e., each sector's allocation receives a proportional decrease as a result).

3.4.4.1 Projected revenues under the alternatives

This section uses the 2003 BSAI Pacific cod TAC and 2001 price estimates (the most recent and complete set of price date available) to project gross ex-vessel and first wholesale revenues under each of the alternatives under consideration. The methods used to determine ex-vessel and first wholesale prices for each gear sector are described briefly in Sections 3.3.5 - 3.3.7, and provided in more detail in Appendix A. There are well documented problems associated with comparing revenues between catcher vessels and catcher processors within an industry. Applying an ex-vessel price to vessels that catch and process their own fish assumes that they would need to pay the market price to catcher vessels if they were only processing cod. There is no market transaction between harvester and processor in this case, so it is not possible to determine if this assumption represents reality. This assumption certainly would not provide a good estimate of a catcher processor's gross revenues, since the revenues generated from processing that fish are not included.

A better method for determining catcher processor gross revenues is comparing first wholesale revenue. That information will be provided in this section as well.

Given the statements above, the 2001 ex-vessel price of BSAI cod harvested with fixed gear and delivered shoreside was $0.26 per round pound of cod for hook-and-line gear and $0.24 per round pound of cod for pot gear. Ex-vessel BSAI Pacific cod prices for the fixed gear sector ranged between $0.14 and $0.30 per pound over the period 1997 - 2001, with the highest price reported in 2000 (Hiatt 2002). The 2001 price estimate is therefore slightly lower than the price reported in 2000. During this time period, the prices paid to pot and hook-and-line vessels were similar; some years pot catcher vessels received a slightly higher price, and some years hook-and-line vessels received a slightly higher price.

The 2001 first wholesale value of BSAI cod harvested by catcher processors using fixed gear was about $1,075 per metric ton of round cod for hook-and-line gear and $1,184 per metric ton of round cod for pot gear. The first wholesale value per ton of round cod from inshore fixed gear deliveries was about $1,258.

It is important to note at this point that estimates of gross revenue are not necessarily a reliable indicator of net revenues. Indeed, in some instances, while gross revenues may be nominally very high, a firm's net revenues may be zero (or even negative, in the short run). However, to calculate net revenues one must have specific cost information on an operation in order to appropriately adjust gross revenue estimates. Data on the costs of production and harvest are two examples. These critical cost data are not available to the analysts, at present, making use of gross revenue estimates the only available alternative, despite their shortcomings. Utilization of gross revenue as a functional proxy for net revenues does not provide a quantitative basis for estimation of "net benefits to the nation," under various allocation scenarios. Therefore, this analysis will not attempt to "quantify" net national benefits, but instead a qualitative discussion of the issue will be provided.

The fixed gear allocations reported in Table 3.27 are used in combination with 2001 price estimates and the 2003 BSAI Pacific cod TAC to project gross ex-vessel and first wholesale revenues under Alternatives 1-3 in Table 3.28 and Table 3.29, respectively. The total ex-vessel values among the alternatives range from $7.2 million to $9.1 million, a difference of about $1.9 million. The no action alternative (average 1995 - 1999) provides the lower bound, and Alternative 2 (status quo) provides the upper bound. This is because the no action alternative is based on the 1995 - 1999 relative harvest of each sector, while the status quo provides for a separate 1.4% allocation to <60' catcher vessels, beyond that provided in the general hook-and-line and pot vessel allotments. In addition, the pot catcher vessels harvested a much higher percentage of the overall pot harvest in 2000 - 2001 than they did in 1995 - 1999. The no action alternative is based on this sector's 1995 - 1999 percentage (75.8%), in which no fixed gear allocations were in place. Alternative 2 and 3 are based on the 2000 - 2001 percentage (86.8%), in which the pot sector had a separate allocation. In addition, the status quo is based on the pot sector receiving an allotment of 18.3% of the total fixed gear cod TAC, while Alternative 3 is based on the actual percentage harvested during 1995 - 1999 (18.1%).

Excluding the no action alternative, the estimated total gross ex-vessel revenues attributed to catcher vessels varies by less than $0.8 million, or 10 percent of the lowest value, under the alternatives. The estimated gross ex-vessel revenues attributed to the hook-and-line catcher vessel sector range from $0.06 million to $0.17 million; the pot sector $7.96 million to $8.18 million; and the <60' sector $0.16 million to $0.75 million. Excluding the no action alternative, the total projected ex-vessel revenues vary only slightly between Alternative 2 and Alternative 3.

Note that under Alternative 1, in which a separate allocation is not made to the fixed gear sectors, the <60' catcher vessel revenues are included in the overall hook-and-line and pot sectors. All of the alternatives assume that <60' catcher vessels can fish off the general hook-and-line and pot sector allocations when these

Table 3.28: Projected gross ex-vessel values generated by harvest sector under Alternatives 1 - 3, based on 2003 TAC and 2001 prices

Alternatives	Hook-and-line CVs				Pot CVs[1]				<60' Pot/H&L				Total		
	%	Catch (mt)	Ave catch/ vessel	$ Mil	%	Catch (mt)	Ave catch/ vessel	$ Mil	%	Catch (mt)	Ave catch/ vessel	$ Mil	%	Catch (mt)	$ Mil
1: No Action[2]	0.3%	292	11	0.17	13.7%	13,342	215	7.06	(included in >60' harvest)				14.0%	13,634	7.23
2: Status quo	0.3%	292	11	0.17	15.9%	15,469	250	8.18	1.4%	1,363	59	0.75	17.6%	17,125	9.10
3: (95 - 99)															
w/o <60' allocation	0.3%	292	11	0.17	15.7%	15,300	247	8.10	(included in >60' harvest)				16.0%	15,593	8.26
w/ <60' allocation	0.1%	97	11	0.06	15.6%	15,216	267	8.05	0.3%	292	13	0.16	16.0%	15,605	8.27
w/Option 1	0.3%	292	11	0.17	15.5%	15,047	243	7.96	1.4%	1,363	59	0.75	17.2%	16,702	8.88

Assumptions: Projected catch is based on the 2003 fixed gear TAC of 97,388 mt. The average # of vessels is based on an estimate of how many CVs will hold the appropriate LLP license and BSAI cod endorsement (57 pot and 9 H&L >60'), and the average number of <60' vessels participating during 1995 - 01 (5 pot and 18 H&L <60'). All of the alternatives, except "Alt. 3 w/<60' allocation" would allow all size catcher vessels to fish off the general longline and/or pot allocations. Under "Alt. 3 w/<60' allocation", the <60' sector would have a separate allocation and not be allowed to also fish off the general longline and/or pot allocations. An ex-vessel price of $0.26/round lb is used for longline vessels; $0.24/round lb for pot vessels. It is assumed that the <60' sector is harvested equally by the two gear types.

[1]The pot sector has one allocation (18.3%) for CPs and CVs under the status quo and Alternative 3 alone. On average during 2000-2001(the years in which Amendment 64 was in place and for which we have available data), pot CVs harvested 86.8% and pot CPs harvested 13.2% of the pot sector allocation excluding rollovers. Thus, the percentages estimated to be harvested by pot CVs under Alt. 2 and 3 reflects this sector's average harvest of the entire pot sector allocation.
[2]Alternative 1 (no action) is estimated using the average relative catch by sector during 1995 - 1999.

fisheries are open, with the exception of the variation of Alternative 3 in which a <60' allocation is made based on this sector's actual relative harvests during 1995 -1999. Under this variation of Alternative 3, the <60' hook-and-line and pot sector would have a separate allocation from the ≥60' hook-and-line catcher vessel and ≥60' pot sectors, and thus each sector would only be allowed to fish off its respective allocation. This is also relevant to the determinations of projected average catch per vessel under each alternative.

The projected first wholesale revenues resulting from Alternatives 1 - 3 are shown in Table 3. 29. The results indicate that the hook-and-line catcher processor sector would generate between $83.8 million and $85.4 million, depending on the alternative selected. Pot catcher processors' revenues from cod would be in the $2.7 million to $5.1 million range. Hook-and-line catcher vessel harvests delivered to shoreside plants would generate revenues in the $400,000 to $1.2 million range at the first wholesale level. Finally, the pot catcher vessel harvests delivered to shoreside plants are projected to generate first wholesale revenues of $16.8 million to $20.3 million under the proposed alternatives.

Because the analysis assumes that the first wholesale revenue per ton of cod is constant for each sector, the marginal impact of moving a ton of cod from one sector to another is the difference in the projected revenues per ton. Therefore, under this limiting assumption, moving a ton of cod from the hook-and-line catcher processor sector to the pot catcher processor sector would increase the overall revenues by about $109 ($1,184 - $1,075). Moving the same ton of cod from the hook-and-line catcher processor sector to either of the catcher vessel sectors would increase projected revenues by about $183 ($1,258 - $1,075). Using these first wholesale values as a proxy of the value derived from cod harvested by each sector could cause the reader to develop erroneous conclusions. For example, catcher processors are primarily producing eastern and western cut cod while shoreplants produced fillets, salt cod, etc. Information on secondary processing markets, consumer markets, and costs of production are needed to estimate a comparable value for cod harvested by the various sectors. None of that information is currently available to the analysts.
All else equal, summing the revenues across all sectors yields a range of total first wholesale revenues from $107.7 million (no action) to $108.1 million (Alternative 2). Alternative 2 provides the upper bound of the

projected revenues, primarily because this alternative allows for the highest allotment to catcher vessels delivering shoreside, and the catch from this sector is estimated to receive a higher first wholesale price (based on 2001 estimates) than that of either catcher processor sector. Alternative 1 provides the lowest allocation to catcher vessels overall. The projected gross revenues under the variations of Alternative 3 vary only slightly, by about $0.2 million (<1 percent). Given the importance of the underlying assumptions in the model (e.g., constant price and sector differentials, equal to those estimated for 2001) to its resulting output, the relatively small differences in attributable total revenues by alternative, and the level of uncertainty in their estimation, it is not advisable that these comparisons alone provide the basis for an allocation change. However, there are notable distributional impacts among sectors at the first wholesale level, association with the various alternatives and options.

As noted previously, regardless of the sector to sector differences in projected gross revenues, impacts on the overall profitability of the fleets cannot be estimated using a gross revenue analysis, thus precluding a quantitative assessment of net benefits. Furthermore, the lack of cost data also frustrates attempts to track the changes in sectoral expenditure that result from the different activity levels, patterns, and revenues. Therefore, impacts across related industries are also difficult to realize. Additional information on the costs of production, which is not currently available, is needed for estimation of net revenue analysis.

3.4.4.2 Rollover options under the alternatives

Table 3.29: Projected gross first wholesale values generated by harvest sector under Alternatives 1 - 3, based on 2003 TAC and 2001 prices

Alternatives	Hook-and-line CPs		Shoreplants receiving catch from hook-and-line CVs		Pot CPs[1]		Shoreplants receiving catch from pot CVs		Total
	%	$ Mil	%	$ Mil		$ Mil	%	$ Mil	$ Mil
1: No Action[2]	81.6%	$85.43	0.3%	$0.37	4.4%	$5.07	13.7%	$16.78	$107.65
2: Status quo	80.0%	$83.75	1.0%	$1.23	2.4%	$2.79	16.6%	$20.32	$108.08
3: (95 - 99)									
w/o <60' allocation	81.6%	$85.43	0.3%	$0.37	2.4%	$2.75	15.7%	$19.25	$107.80
w/ <60' allocation	81.6%	$85.43	0.3%	$0.37	2.4%	$2.74	15.8%	$19.33	$107.86
w/Option 1	80.5%	$84.28	1.0%	$1.23	2.3%	$2.71	16.2%	$19.79	$108.00

Assumptions: The percentages are applied to the 2003 fixed gear TAC of 97,388 mt. The first wholesale prices per mt of round cod are based on 2001 estimates using COAR data: H&L CP sector $1,075/mt; Pot CP sector $1,184/mt; and inshore sector $1,258/mt. The <60' H&L and pot harvest is included in the catch received by shoreplants; it is assumed that the 1.4% is harvested equally by each gear type under Alt. 2 and 3. Under Alt. 2, the <60' sector receives 1.4%; under Alt. 3 w/<60' allocation, the <60' sector receives 0.3%; under Alt. 3, Option 1, the <60' sector receives 1.4%.

[1]The pot sector has one allocation (18.3%) for CPs and CVs under Alternative 2 and Alternative 3 alone. On average during 2000-2001(the years in which Amendment 64 was in place and for which we have available data), pot CVs harvested 86.8% and pot CPs 13.2% of the pot sector allocation excluding rollovers. Thus, the percentages estimated to be harvested by pot CVs and CPs under Alt. 2 and 3 reflect each sectors' average relative harvests during 2000 - 01.

[2]Alternative 1 (no action) is estimated using the average relative catch by sector during 1995 - 1999.

Three options are provided for consideration under both Alternative 2 and Alternative 3 to address quota that is reallocated from one gear sector to another. These options are not proposed under Alternative 1. There would not be separate fixed gear allocations under that alternative to which NMFS could apportion reallocated quota. Under Alternative 1, any quota projected to remain unused by one or another gear groups would be reallocated to the overall fixed gear sector, as deemed appropriate by the Regional Administrator. Alternative 4 only addresses the split between pot catcher processors and pot catcher vessels. It may only

be selected in combination with Alternatives 2 or 3, in which the pot gear sector has a separate share of the Pacific cod TAC. Thus, selection of any of the rollover options under Alternative 2 or 3 does not affect the ability to select Alternative 4.

Options 1 and 2 are provisions currently encompassed in Amendment 64 (status quo). Option 3 would change the seasonal apportionments of the jig allocation and reallocate any unused quota to the <60' hook-and-line and pot catcher vessel sector. Each of these options will be discussed separately in this section. **Option 1 is not mutually exclusive from Options 2 or 3, as they address different sectors from which quota is reallocated. Option 2 as currently stated, however, is partially mutually exclusive from Option 3**, as both options propose varying methods by which to reallocate unused jig quota. These differences will be discussed further in this section. Recall that background information on the amount of quota reallocated to the BSAI fixed gear cod fishery in recent years is provided in Section 3.3.2.

Option 1 (preferred alternative)

Option 1 is as follows:

> *Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.*

This option was included under the original BSAI Amendment 64, to provide direction regarding which sector should receive unused quota should the hook-and-line catcher vessel and the <60' sector be unable to harvest all of their cod allocations in a given year. The intent being that any unused quota from the longline catcher vessel sector is reallocated to the same gear type. Recall also that the 1.4% allocation established for the <60' catcher vessel sector came from the hook-and-line catcher processor sector's historical share in Amendment 64. The <60' sector harvested an average of about 0.3% of the Pacific cod quota during 1995 - 1998 (the years on which the allocations under Amendment 64 are based). Thus, while providing a higher allocation to the <60' fleet than it had harvested historically in order to allow for growth in that sector, the Council reasoned that if the quota should remain unused it should be reallocated back to the hook-and-line catcher processor sector.

Since Amendment 64 has been in place, the amount of quota reallocated from the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel sectors has been relatively low. When the allocations became effective in mid-2000, the hook-and-line catcher vessel cod fishery was subsequently closed, as it had already met its revised 2000 allocation as of mid-July. No quota has been reallocated from the longline catcher vessel sector to the hook-and-line catcher processors since the allocations have been in place, as the catcher vessel sector has been fully utilizing its entire quota (and some reallocated quota) each year. Note also that the original allocation to the hook-and-line catcher vessel sector is relatively small (0.3% of the fixed gear BSAI Pacific cod TAC) and has not exceeded 300 mt since 2000. Considering that the core vessels that have been taking the majority of the quota in the past will continue to be eligible under Amendment 67, it is likely that the catcher vessel fleet will be capable of fully harvesting this allocation in the future.

The <60' fleet, while not fully harvesting its allocation in 2000 or 2001, did harvest its entire quota in 2002. During the first two years (2000 - 2001) of having a distinct allocation, the data indicate that the <60' sector harvested approximately 19% and 64% of its share of the fixed gear TAC (1.4%), respectively. The catch attributed to this sector and the 1.4% allocation is more difficult to calculate since the catch is attributed to

the small boat allocation only when the general hook-and-line catcher vessel and pot fisheries are closed. Thus, the <60' fleet did harvest additional cod that was attributed to the general hook-and-line catcher vessel allocation and the pot allocation, as appropriate. In 2000 and 2001, the <60' hook-and-line catch accounted for about 6% and 55% of the general hook-and-line catcher vessel allocation of 0.3%, and the <60' pot harvest accounted for about 2% and <1% of the general pot catcher vessel allocation of 18.3%. Most of the cod harvested by <60' vessels was attributed to hook-and-line vessels prior to 2000, while in 2000 and 2001, vessels using pot gear dominated this fishery. In 2001, the <60' quota was taken from mid-March until September 1 by pot gear (when the general pot fishery B season opened), and from mid-March until June 10 by hook-and-line gear (no halibut bycatch was apportioned to the hook-and-line cod fisheries from June 10 - July 31). Overall, in 2000 and 2001, the <60' hook-and-line and pot sector harvested <1% (1,610 mt) of the total fixed gear Pacific cod catch, less than half of which (711 mt) was attributed to the general hook-and-line catcher vessel and pot vessel allotments.

In 2002, however, this sector harvested its entire quota by June 11 and anecdotal evidence suggests that the fleet was capable of further increasing its cod harvest had additional quota been available through the summer. While participation varies each year, in 2002 there were five pot catcher vessels <60' that harvested the 1.4% allocated to small catcher vessels. Recall that harvest of Pacific cod made by catcher vessels <60' using pot gear accrues against the 18.3 percent when the general pot fishery is open. Similarly, harvest of Pacific cod made by catcher vessels <60' using hook-and-line gear accrues against the 0.3 percent when the general hook-and-line catcher vessel fishery is open (50 CFR 679.20(a)(7)(i)(C)(4)). Since the hook-and-line catcher vessel A season was longer than the pot fishery A season, all of the <60' hook-and-line catch (from 14 vessels) was attributed to the 0.3% reserved for hook-and-line catcher vessels in 2002.[33] Anecdotal evidence and public testimony suggest that the <60' fixed gear fleet is now aware of and prepared to fully prosecute its cod allocation.[34] Given that the <60' fleet is exempt from the Pacific cod endorsement requirement, and barring substantial changes in the fishery, very little quota may be anticipated to remain unused by this sector in the future should it continue to receive a separate allocation.

Given the information above, it does not appear as if the hook-and-line catcher processor sector would receive a substantial amount of quota from either of these two sectors in the near future, despite the advent of the cod endorsement under Amendment 67. Thus, this option does not significantly affect any sector of the fixed gear fishery. Given the original rationale for directing reallocated quota from these sectors back to the hook-and-line catcher processor sector, and the fact that National Standard 1 mandates that the fishery shall be managed to achieve 'optimum yield,' it may be appropriate to continue to include direction on how unused quota should be reallocated under Alternative 2. However, it appears that the impact of this provision on the hook-and-line catcher processor sector's overall allocation will be very modest to none.

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[33] Preliminary data show that the <60' hook-and-line catcher vessel fleet harvested about half of the total hook-and-line catch in 2002 (total catch is estimated at 404 mt). Note, however, that preliminary data for 2002 has not been refined for 'targeted' Pacific cod using the same method as Tables 3.3 and 3.4. Thus, some of this harvest may not truly be in the directed cod fishery.

[34] NMFS reports that there is more interest in the <60' pot fishery in 2003 than previously experienced. The <60' fleet started fishing in mid-March in 2003, as opposed to late April in 2002. As of April 4, half of this sector's annual allocation had been harvested by three hook-and-line and five pot vessels. Considering the TAC is very similar, this fishery may be closed earlier in 2003 than previous years (Morrison, 3/4/03).

Option 2 (preferred alternative for trawl reallocations)

Option 2 is as follows:

> *Any quota reallocated from the jig or trawl sectors shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.*

This provision was included under the original BSAI Amendment 64, to provide direction regarding which sector should receive unused quota should the trawl and/or jig sector be unable to harvest all of its BSAI Pacific cod allocations in a given year. The 95% - 5% split is based on the actual harvest of reallocated quota by each sector from 1996 - 1998. Typically, the trawl sector reaches its prohibited species cap for halibut prior to harvesting its entire cod allocation (47%), and there is not usually sufficient effort in the jig fishery to fully utilize its allocation (2%). By regulation, this reallocation occurs in September, and often there is a second reallocation to the fixed gear sector if additional quota is projected to remain unused. The timing of the reallocation is significant, as it must not occur prematurely in order to allow the trawl sectors ample time to use their allocations, and yet it must be early enough to allow for harvest by the fixed gear sectors before the end of the fishing year. Table 3.30 below shows the amount of jig and trawl quota that was reallocated to each fixed gear sector under this reallocation scheme in 2000 - 2002, as well as the percentage of each sector's total catch represented by reallocated quota.

Table 3.30: BSAI Pacific cod quota (in mt) reallocated from the jig and trawl sectors to the fixed gear sectors, 2000 - 2002

YEAR	Hook-and-line CPs			Hook-and-line CVs			Pot vessels		
	reallocated quota (mt)	amount harvested	% of sector's total catch	reallocated quota (mt)	amount harvested	% of sector's total catch	reallocated quota (mt)	amount harvested	% of sector's total catch
2000	11,400	10,936	13.4%	0	0	0%	600	600	3%
2001	25,270	23,912	25.3%	400	348	56.8%	1,330	1,330	7.4%
2002[1]	11,340*	11,272*	12.7%	200	122	30.2%	360	0	0
Average 2000 - 02	16,003	15,373	17.4%	300	157	34.3%	763	643	3.6%
TOTAL	**48,010 (94.3%)**	**46,120**	**17.4%**	**600 (1.2%)**	**470**	**34.3%**	**2,290 (4.5%)**	**1,930**	**3.6%**

Note: Prior to Amendment 64, the majority (average of 95% during 1996-1998) of BSAI Pacific cod quota reallocated tothe fixed gear sector was harvested by the hook-and-line catcher processor sector. These data represent the net reallocated quota for each year.
[1]2002 data (NMFS Blend) are considered preliminary, through 12/31/02.
*An additional 3,500 mt of cod quota was reallocated from the pot sector to the hook-and-line CP sector on November 20, 2002 in order to avoid underutilizing the cod resource. Of the total quota reallocated to the hook-and-line CP sector in 2002 (14,840 mt),this sector harvested all but 521 mt (99.4%). Estimates of amount of jig and trawl quota harvested were calculated by multiplying 99.4% by the total jig and trawl reallocated quota (11,340 mt).

Table 3.30 shows the effect in recent years of reallocating the jig and trawl quota as currently provided for in Amendment 64. Notwithstanding annual variation in TACs and catch, these broad impacts would be expected to continue under Option 2. **Jig and trawl allocations combined accounted for a total of 50,900 mt of reallocated quota to the fixed gear sectors during 2000 - 2002, which represents about 16% of the total combined fixed gear Pacific cod TAC during that time period.** Note that there is some flexibility in that NMFS inseason managers have allocated about 1.2% of the total jig and trawl rollovers during 2000 - 2002 to the hook-and-line catcher vessels, in order to avoid closing that fishery at the end of the year. (M.

Furuness, pers. comm.). During the same time period, the hook-and-line catcher processor vessels have received about 94.3% and pot vessels 4.5% of the total reallocated quota from the jig and trawl sectors.

Table 3.30 also shows the percentage of each sector's total annual catch that is attributed to quota reallocated from the trawl and jig sectors. Note that in 2000 - 2002, the hook-and-line catcher processors and pot vessels harvested almost all of their reallocated quota each year, with the exception of the pot sector in 2002. The hook-and-line catcher vessel sector harvested an average of 78% of the reallocated quota they received in 2001, and again in 2002. Including the amount of quota that was reallocated from the trawl and jig sectors changes the relative harvest distribution among sectors as shown previously in Table 3.3. Harvest of cod quota that was reallocated from the jig and trawl sectors represented an average of 17% of the total annual Pacific cod catch for hook-and-line catcher processors, 34% for hook-and-line catcher vessels, and 4% for the pot sector. The total of 50,900 mt of reallocated jig and trawl quota represents about 16% of the total fixed gear catch of BSAI Pacific cod during that time period.

Information is also provided to convey what proportion of reallocated quota is attributed to the trawl sector alone since the implementation of Amendment 64. Of the total combined jig and trawl reallocations to the fixed gear sector in 2000 - 2002, trawl quota accounted for 75%, 89%, and 71% each year, respectively. **Overall, trawl allocations accounted for a total of 41,495 mt of reallocated quota to the fixed gear sectors during 2000 - 2002, or almost 82% of the total jig and trawl reallocations during that time period.** This represents about 13% of the total combined fixed gear Pacific cod TAC during that time period.

Table 3.31: BSAI Pacific cod quota (mt) reallocated from the trawl sector[1] to the fixed gear sectors, 2000-02

YEAR	Hook-and-line CPs			Hook-and-line CVs			Pot vessels		
	reallocated quota (mt)	amount harvested[2] (mt)	% of sector's total catch	reallocated quota (mt)	amount harvested[2] (mt)	% of sector's total catch	reallocated quota (mt)	amount harvested[2] (mt)	% of sector's total catch
2000	8,550	8,199	10.1%	0	0	0	450	450	2.3%
2001	22,490	21,276	22.5%	356	310	50.6%	1,200	1,200	5.9%
2002[1]	8,051	8,003	9.0%	142	87	21.5%	256	0	0
Average 2000 - 02	13,030	12,493	14.1%	166	132	28.9%	635	550	3.1%
TOTAL	**39,091 (94.2%)**	**37,478**	**14.1%**	**498 (1.2%)**	**397**	**28.9%**	**1,906 (4.6%)**	**1,650**	**3.1%**

Note: Prior to Amendment 64, the majority (average 95% during 1996-1998) of BSAI Pacific cod trawl quota reallocated to the fixed gear sector was harvested by the hook-and-line catcher processor sector. These data represent the net reallocated quota for each year.
Note: 2002 data (NMFS Blend) are considered preliminary, through 12/31/02.
[1]In 2000, 2001, and 2002, reallocated trawl quota accounted for 75%, 89%, and 71% of the total combined jig + trawl quota reallocated to the fixed gear sectors, respectively. To determine the amount reallocated only from trawl, these percentages were applied to the total jig + trawl reallocations provided in Table 3.10. For example, of the 11,400 mt total reallocated to the hook-and-line CP sector from jig and trawl in 2001, 75% (8,500 mt) was considered reallocated from trawl and 25% (2,850 mt) from jig.
[2]The amount of reallocated trawl quota harvested by each sector was estimated by applying the percentage of total reallocated (jig + trawl) quota harvested in each year to the trawl reapportionment.

Table 3.31 shows the impact of the trawl reallocations from 2000 - 2002 on the fixed gear sectors; these impacts would be expected to continue should Option 2 be modified to apply only to Pacific cod quota reallocated from the *trawl* sector. Table 3.31 shows that reallocated *trawl* quota accounted for an average of 14% of the hook-and-line catcher processor cod catch, 29% of the hook-and-line catcher vessel cod catch, and 3% of the pot vessel cod catch during 2000 - 2002.

As stated previously, the amount of quota reallocated to and harvested by the fixed gear sectors varies considerably each year and depends on a number of factors, including the timing of the reallocation,the number of vessels remaining in the fishery when the reallocation occurs, weather, profitability of the fishery, market conditions, and opportunity to participate in other fisheries. With the exception of the pot cod fishery in 2002, however, each sector has almost fully harvested its reallocated quota in recent years.[35] Note that the pot sector received 360 mt of quota from the jig and trawl sectors on September 27, 2002, but 3,500 mt of cod quota was subsequently reallocated from the pot to the hook-and-line catcher processor sector on November 20, 2002, in order to ensure that the TAC was fully harvested.

The method used to reallocate quota in Option 2, which would continue to reallocate any unused quota from the jig and trawl sectors to the hook-and-line catcher processors (95%) and pot vessels (5%), is based on the actual harvest of reallocated quota from 1996 - 1998. Table 3.30 shows that since this reallocation scheme has been in place, it has resulted in an increase in Pacific cod catch to the fixed gear sectors, representing on average 17% of the hook-and-line catcher processors' total catch, 34% of the hook-and-line catcher vessel sector's total catch, and 4% of the pot vessel sector's total catch. **Although each year varies considerably, this range of reallocated quota may be expected to continue under Option 2.** It may be appropriate to continue this allocation since it is based on the historical harvest of reallocated quota in the years prior to Amendment 64 and does not appear to jeopardize the ability to harvest the entire Pacific cod TAC. In the case that the pot sector does not harvest its entire allocation, as occurred in 2002, the unused quota is reallocated to and harvested by the hook-and-line catcher processor sector.

However, while the current method is based on the actual harvest of reallocated quota and each sector is typically capable of harvesting that quota, it is important to consider that the hook-and-line catcher vessel sector and the <60' catcher vessel sector may also be capable of harvesting additional quota reallocated from the jig and trawl sectors. As discussed previously under Option 1, the longline catcher vessel sector has fully utilized its quota (and an average of 157 mt reallocated quota) each year since Amendment 64 has been effective. The original allocation to the hook-and-line catcher vessel sector is relatively small (0.3% of the fixed gear BSAI Pacific cod TAC) and has not exceeded 300 mt under Amendment 64.

In addition, while the <60' fleet harvested only 19% and 64% of its unique allocation in 2000 and 2001 (and an additional 711 mt which was attributed to the general hook-and-line and pot sector allocations), respectively, it harvested its entire 2002 allocation by June 11 (NMFS Blend data). Public testimony has suggested that this fleet could have harvested additional cod in 2002 had more quota been available, and that

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[35]There are numerous potential reasons the pot cod fishery did not harvest its entire allocation in 2002, and thus, did not use the 360 mt that was rolled over from the jig and trawl sectors in September. Historical evidence suggests that the catch per unit effort is much lower for pot gear in October and November, and starts to increase in December. Some industry participants also contend that it is harder to retain crews to fish relatively little Pacific cod quota late in the year for a much lower price, for example, $0.25/lb, when crews have been making considerably more ($6.20/lb in 2002) in the Bristol Bay red king crab fishery. Other anecdotal evidence suggests that the quality of the cod may be reduced in the fall months for pot catcher processor vessels. Still other catcher vessels with halibut quota share assert that when the weather starts to worsen in the Bering Sea in September and October, many catcher vessels move into the Gulf of Alaska and fish halibut IFQs.

the <60' fleet is now geared up and prepared to take full advantage of their small boat allocation. As it was in 2002, the <60' fleet had to stop fishing BSAI Pacific cod after the 1.4% was harvested, as the general pot (18.3%) and longline (0.3%) fisheries were already closed.[36] Some members of the fleet contend that the 1.4% allocation to small vessels, while more than they historically harvested in 1995 - 1998, is not enough to sustain a growing small vessel fleet. Public testimony suggests that there are some small vessels which are substantially dependent on Pacific cod, and because this fishery is not protected from new entry in the future, more quota needs to be apportioned to this fleet. Recall that owners of <60' vessels are not required to have a cod endorsement on their BSAI groundfish non-trawl license, thus, any <60' catcher vessel with both a non-trawl gear and BSAI area endorsement on their groundfish LLP license is eligible to fish off the 1.4% cod quota allocated to small vessels. As of April 2003, 125 catcher vessels <60' held the appropriate license to fish BSAI Pacific cod, although only 5 pot and 14 hook-and-line catcher vessels <60' did so in 2002.

As mentioned previously, however, the jig and trawl quota is currently reallocated in September or later, in order to allow the trawl sector time to harvest its allocation before it reaches its prohibited species cap for halibut. Because the jig fishery has harvested a maximum of 6% of its allocation each year since 1996, it may not be affected by an earlier reallocation process, so long as some quota remains available throughout the year. Recall also that the optimal fishing time for the <60' catcher vessel cod fleet is in the summer, both because of weather and because the cod are better aggregated. Thus, because this fleet is so weather dependent, it may not benefit from receiving reallocated quota after September, as these smaller vessels may not be able to stay on the fishing grounds much later than August/September. Thus, while the <60' fleet contends that an increase to its current 1.4% is warranted, based on 2002 harvest levels, the timing of the trawl reallocation may prevent this from being a practical option for this fleet. However, an earlier reallocation from the jig fishery may be practically feasible, and is explored further under Option 3.

As discussed previously, the data show that the hook-and-line catcher processor sector harvests the great majority of the BSAI Pacific cod that is caught late in the year during the rollover period (averaging about 95% during 1995 - 99). The pot fleet averages about 5% of the total cod harvest during the rollover period. Table 3.30 shows that on average (2000-2002) these reallocations have represented about 17% of the hook-and-line catcher processors' total catch and 4% of the pot sectors' total catch in recent years. The trawl reallocations comprise the majority of the reallocated quota, representing about 14% of the total cod harvest by hook-and-line catcher processors and about 3% of the total pot harvest during this same time period. This practice would continue under Option 2. Should Option 2 not be selected, however, it would not represent a comparable *loss* in catch to the hook-and-line catcher processors and pot vessels of equal amounts. This is because, should the Council not provide direction regarding which sector should receive reallocated quota from the jig and trawl sectors, NMFS inseason managers would provide for the reallocation on an annual basis as deemed necessary to ensure the BSAI cod TAC is fully utilized. Because hook-and-line catcher processors harvested the majority of the reallocated quota prior to Amendment 64, similar circumstances would be expected to result if Option 2 was not selected. However, because the hook-and-line catcher processor sector harvested the great majority of reallocated quota in the past, any substantial modification by NMFS inseason managers would likely result in less quota reallocated to that sector.

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[36] The pot fishery closed on March 16 in 2002 because it had fully harvested its A season TAC. The hook-and-line catcher vessel fishery closed on June 10 because that is the last day of its A season (there is no halibut bycatch apportionment from June 10-August 15). The B season for the pot fishery opened September 1 and the hook-and-line fishery opened August 15.

Option 3 (preferred alternative)

Option 3 is as follows:

> *Apportion the 2% BSAI Pacific cod jig allocation on a quarterly or trimester basis as follows, and reallocate unused jig gear quota to the catcher vessels <60' using hook-and-line or pot gear:*
>
> *Suboption:*
> *(a)* *25% - 25% - 25% - 25%*
> *(b)* *50% - 30% - 15% - 5%*
> *(c)* *33.3% - 33.3% - 33.3%*
> *(d)* *60% - 25% - 15%*
> *(e)* *Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.*
> *(f)* *40%-20%-40%* **(preferred alternative)**

Option 3 proposes six different ways to seasonally apportion the BSAI cod allocation for the jig sector, with the intent to reallocate any unused quota at the end of each season to catcher vessels <60' using hook-and-line or pot gear. This option conflicts in part with Option 2 (the original provision under Amendment 64), which requires that any unused jig quota be reallocated 95% to the hook-and-line catcher processor sector and 5% to the pot sector. **Thus, Option 2 and Option 3 cannot both be selected in their entireties. However, both Option 2 and Option 3 can be selected, if Option 2 is modified to pertain only to quota reallocated from the trawl sector.** (The latter is part of the Council's preferred alternative.)

Authority to modify the jig seasonal apportionments

Under BSAI Amendment 46, the jig fishery receives 2% of the BSAI Pacific cod TAC annually.[37] This fishery is considered a small boat, entry-level fishery, exempt from the LLP license requirements.[38] While the fixed and trawl gear fleets were allocated close to their average catch in the original allocations, Amendment 46 was designed to allow for a substantial increase in the share of the Pacific cod catch taken with jig gear, in order to allow for some growth in that sector. The following sections of the BSAI Fishery Management Plan apply to the BSAI Pacific cod jig fishery allocations:

> *13.4.9.2.1 Gear allocations. The Bering Sea and Aleutian Islands management area Pacific cod TAC shall be allocated among gear groups as follows: 2 percent to vessels using jig gear; 51 percent to vessels using hook-and-line or pot gear; and 47 percent to vessels using trawl gear. The trawl apportionment will be divided 50 percent to catcher vessels and 50 percent to catcher processors.*
>
> *13.4.9.2.2 Seasonal apportionments. The amount of Pacific cod allocated to gear groups under Section 13.4.9.2.1 may be seasonally apportioned. Criteria for seasonal apportionments and the seasons authorized to receive separate apportionments will be set forth in regulations.*

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[37] BSAI Amendment 24 originally established the 2% allocation to the BSAI Pacific cod jig fishery. This amendment was approved for the years 1994 - 1996. Upon expiration, BSAI Amendment 46 continued the 2% cod allocation to vessels using jig gear. Amendment 46 does not have a sunset provision attached. Regulations are located at 50 CFR 679.20(a)(7)(i)(A).

[38] Vessels that do not exceed 32'LOA in the BSAI, and vessels that do not exceed 60'LOA and that are using jig gear (no more than 5 jig machines, one line per machine, and 15 hooks per line) are exempt from the LLP requirements in the BSAI.

The jig fishery for BSAI Pacific cod was seasonally apportioned starting in 2002 under the Steller sea lion rule and the authority in Section 1.3.4.9.2.2 of the BSAI FMP. The seasonal apportionment was intended to temporally disperse the cod fishery as a measure to protect cod as a food source for Steller sea lions. The fishery is currently apportioned 60% of the cod quota in the A season (Jan. 1 - June 10) and 40% in the B season (June 10 - Dec. 31) (50 CFR 679.20(a)(7)(iii)), and any unused portion of the first seasonal allowance is reapportioned to the next seasonal allowance.

While the seasonal apportionment is part of the Steller sea lion rule, it does not appear that any of the options proposed in this amendment package would be cause for a re-consultation under the ESA. Discussions with NMFS Protected Resources staff indicate that the options under consideration are likely in the realm of what has previously been considered for the jig fishery, meaning that the changes being considered are not significant enough to suspect that any adverse impacts are likely beyond those previously considered in the FMP Biological Opinion and the 2001 Biological Opinion (S. Capron, pers. comm.). As the fishery exists currently, with very little of the jig quota being prosecuted, there is little concern that any of the options would necessitate a reconsultation under the requirements of the ESA.

Under Option 3, any unused quota would be reallocated to catcher vessels <60' using hook-and-line or pot gear at the end of each jig season. Thus, not only would the direction of the reallocation change under this option, but the first seasonal jig allowance would not be rolled over to subsequent jig seasons. Thus, should Option 3 be selected under Alternative 2 or 3, the regulations would need to be modified, but no additional changes to the BSAI FMP would be necessary.

Impacts of Option 3

Refer to Section 3.3.2 for general background information on the BSAI Pacific cod jig fishery in recent years. This sector harvested an average of 6% of its entire Pacific cod allocation in 1995 - 2001 (see Table 3.32), and no more than 6% in any one year since 1996. Thus, the vast majority of the jig quota has been reallocated to the hook-and-line catcher processor sector in the fall of each year. Upon implementation of Amendment 64 in mid-2000, 95% of the unused jig quota is reallocated to hook-and-line catcher processors and 5% to pot vessels. On average (1995 - 2001), reallocations from the jig sector have accounted for 3% of the total fixed gear sector Pacific cod TAC in the BSAI. **On average during 1995 - 2001, reallocations from the jig sector accounted for about 3.7% of the hook-and-line catcher processor sector's total catch and 0.9% of the pot sector's total catch. Since the implementation of Amendment 64 (2000 - 2002), cod quota reallocated from the jig sector has accounted for about 3.3% of the hook-and-line catcher processor sector's total catch and 0.5% of the pot sector's total catch.**

The intent of Option 3 is to provide more quota to the <60' catcher vessel sector, without modifying the original allocations to the jig or other fixed gear sectors. As discussed previously, while the <60' fleet harvested 19% and 64% of its unique allocation in 2000 and 2001 (and about 711 mt of additional cod that was attributed to the general longline and pot allocations during that time period), respectively, it harvested its entire 2002 allocation by June 11. Public testimony has suggested that this fleet could have harvested additional cod in 2002 had more quota been available and that the <60' fleet is now prepared to take full advantage of its small boat allocation.[39] As it was in 2002, the <60' fleet stopped fishing BSAI Pacific cod

[39] NMFS reports that there is more interest in the <60' pot fishery in 2003 than previously experienced. The <60' fleet started fishing in mid-March in 2003, as opposed to late April in 2002. The entire <60' allocation (1,363 mt) was harvested and the fishery closed by April 22.

after the 1.4% was harvested, as the general pot (18.3%) and longline (0.3%) fisheries were already closed.[40] Some members of the fleet contend that the 1.4% allocation to small vessels, while more than they historically harvested in 1995 - 1998, is not enough to sustain a growing small vessel fleet. Public testimony suggests that there are some small vessels which are substantially dependent on Pacific cod, and because this fishery is not protected from new entry in the future, more quota needs to be apportioned to this fleet. As of April 2003, 125 catcher vessels <60' held the appropriate license to fish BSAI Pacific cod (27 were interim licenses), although only 5 pot and 14 hook-and-line catcher vessels <60' did so in 2002.

Should unused jig quota be reallocated to the <60' sector, it effectively represents a shift in the distribution of cod quota from the hook-and-line catcher processor and pot sectors to the hook-and-line and pot catcher vessels <60'. The values above represent an estimate of the maximum annual potential loss from the hook-and-line catcher processor (-3.7%) and pot sectors (-0.9%) should unused jig quota be redirected to the <60' sector. However, this estimate of reduced catch assumes that the <60' sector can harvest all of the quota reallocated from the jig sector, which averaged 3,671 mt per year during 1995 - 01. This additional quota is more than twice the amount of quota the <60' sector has received under its 1.4% allocation under Amendment 64. No definitive conclusions can be drawn regarding whether the <60' sector will be capable of harvesting all of the reallocated jig quota in the future. However, because the <60' sector is not subject to seasonal apportionments, any reallocated quota can be fished throughout the year (although the <60' hook-and-line sector remains subject to halibut bycatch caps). Should the <60' sector be unable to harvest all of the quota reallocated from the jig sector in a given year, that quota would be reallocated to the hook-and-line catcher processor sector under Option 1.

Over time, it seems likely that the presence of significant amounts of unharvested cod, allocated to the <60' vessel class (in combination with that sector's exemptions from LLP, cod endorsement requirements, etc.) will induce capital investment, in the form of both new entry and "capital stuffing," in this sector. Growth in the <60' sector may be consistent with the Council's intent, given its expressed desire to provide for an "entry level" cod fishery. However, as the size and capacity of the <60' sector increases, pressure to re-allocate additional shares of the cod TAC, at the expense of other user groups, seems unavoidable.

In the immediate term, the values cited above represent an estimate of the maximum potential change in harvest to each sector. While the pot sector would no longer receive reallocated quota from the jig sector (5% equates to an average of 184 mt per year during 1995 - 2001), the hook-and-line catcher processor sector may continue to receive quota from this sector via the reallocation from the <60' class. Thus, the loss to the hook-and-line catcher processor sector may be estimated at 0 - 3.7% of its annual harvest of BSAI Pacific cod.

[40] The pot fishery closed on March 16 in 2002 because it had fully harvested its A season TAC. The hook-and-line catcher vessel fishery closed on June 10 because that is the last day of its A season (there is no halibut bycatch apportionment from June 10-August 15). The B season for the pot fishery opened September 1 and the hook-and-line fishery opened August 15.

Table 3.32: Allocation, catch, and number of vessels participating in the directed BSAI Pacific cod fishery using jig gear, 1995-2002

Year	Allocation (mt)	Reallocated quota	Catch (mt)	% of allocation harvested	# vessels
1995	5,000	- 4,000	724	14.5%	47
1996	5,400	- 4,400	330	6.1%	33
1997	5,400	- 5,000	171	3.2%	17
1998	3,885	- 3,500	191	4.9%	10
1999	3,275	- 2,800	201	6.1%	16
2000	3,571	- 3,000	79	2.2%	17
2001	3,478	- 3,000	102	2.9%	21
Total 1995 - 01	30,009	-25,700	1,797	6.0%	
Average 1995-01	4,287	-3,671	257	6.0%	23

Source: NMFS Blend data, 1995-2001.

Table 3.32 above shows that an average of 3,671 mt of Pacific cod quota was reallocated annually from the jig sector during 1995 - 2001.[41] Thus, assuming both that reallocations from the jig sector would continue in the future and the <60' sector could harvest the entire reallocation, this provides an estimate of the increase in catch to the <60' hook-and-line and pot catcher vessel fleet annually under Option 3. **Had the <60' sector harvested its 2002 allocation (1,314 mt) plus an additional average of 3,671 mt reallocated from the jig sector, this would amount to a total harvest almost four times greater (4,985 mt) than the original allocation to this sector.** This would effectively increase the <60' sector's relative share of the overall fixed gear BSAI Pacific cod *catch* to 4.8% in 2002.[42]

Under Option 3, the jig fishery would be seasonally apportioned according to one of the strategies proposed in Suboptions (a) - (f):

(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40% **(preferred alternative)**

[41] Preliminary data (NMFS shoreside electronic database) from 2002 follows the trend: 19 vessels using jig gear harvested 164 mt, or about 4% of the 2002 allocation of 3,700 mt. A total of 3,400 mt was reallocated to other gear sectors.

[42] Fixed gear harvest in 2002 (preliminary NMFS Blend data) was 104,681 mt. Note that while the <60' catcher vessels receive a 1.4% allocation of the fixed gear BSAI cod TAC, their share of the overall fixed gear harvest may be greater than 1.4% because hook-and-line and pot catcher vessels <60' are also eligible to fish off the 0.3% and 18.3% allocated to the general hook-and-line and pot fishery, respectively. In 2000 and 2001, <60' vessels harvested <1% of the overall fixed gear cod catch; in 2002, this sector harvested approximately 1.48% of the overall fixed gear cod catch.

In comparing the suboptions for apportioning the BSAI Pacific cod fishery by season, it is important to consider the annual jig catch by trimester or quarter. Note that data are only available through 2001; 2002 data are considered preliminary. Note also that 2002 was the first year in which seasonal apportionments were in place for the jig sector. Table 3.33a below shows the annual jig catch in 1997 - 2001 by trimester and quarter.

Table 3.33a: BSAI Pacific cod catch (mt and %) using jig gear, by quarter and trimester 1997 - 2001

YEAR	1st quarter (Jan. - March)	2nd quarter (April - June)	3rd quarter (July - Sept.)	4th quarter (Oct. - Dec.)
1997	32 (19%)	68 (40%)	67 (39%)	4 (2%)
1998	21 (11%)	132 (69%)	23 (12%)	15 (8%)
1999	39 (19%)	44 (22%)	77 (38%)	41 (20%)
2000	24 (30%)	36 (46%)	17 (21%)	2 (3%)
2001	4 (4%)	21 (21%)	77 (75%)	<1 (<1%)
Average 1997 - 01	24 (17%)	60 (40%)	52 (37%)	17 (7%)
YEAR	**1st trimester (Jan. - April)**	**2nd trimester (May - Aug.)**	**3rd trimester (Sept. - Dec.)**	
1997	51 (30%)	114 (67%)	6 (4%)	
1998	42 (22%)	134 (70%)	15 (8%)	
1999	47 (23%)	105 (52%)	49 (24%)	
2000	31 (40%)	42 (53%)	5 (7%)	
2001	10 (10%)	86 (84%)	6 (6%)	
Average 1997 - 01	36 (25%)	96 (65%)	16 (10%)	

Source: ADF&G fishtickets, 1997 - 2001.

The table above shows that in the past five years for which data are available, the jig fishery has harvested the vast majority of its quota (73%) in the spring and summer months (April - August), with an average of 17% being harvested in the first quarter and very little quota (10% on average) being taken from September onward. (Indeed, except for the presence of the 1999 catch, which is anomalously high in the last trimester, this "average" would be much smaller.) Thus, in order to limit disruption to the jig fishery, it may be more important to ensure that the majority of the cod quota is available in the beginning of the year through the summer, as opposed to the fall and winter months. However, Table 3.33a indicates, and industry representatives have asserted, that the jig fishery can operate year-round, and many jig fishermen prefer to have cod quota available in September and October in order to provide bait for the upcoming crab fisheries. Thus, it may be preferable to have some cod available each trimester or quarter, even if the allocation is front-loaded in the first half of the year.

Note that none of the suboptions under Option 3 would prevent the jig fishery from having quota available during the last quarter or trimester of the fishery, although some suboptions would provide more quota later in the year than others. Compared to the status quo, in which 60% of the jig quota is apportioned to the first season and 40% to the second season, only Suboption (a) appears to limit the jig fishery to less quota than they currently receive in the first half of the year. In addition, all suboptions would reapportion the quota at the end of each jig season as opposed to the end of the year. However, because the jig fishery has historically taken very little of its initial allocation, the impact of this action on the jig fishery appears modest if not negligible at the current time.

Table 3.33b: Percent of total jig allocation harvested by jig sector, average 1997 - 2001

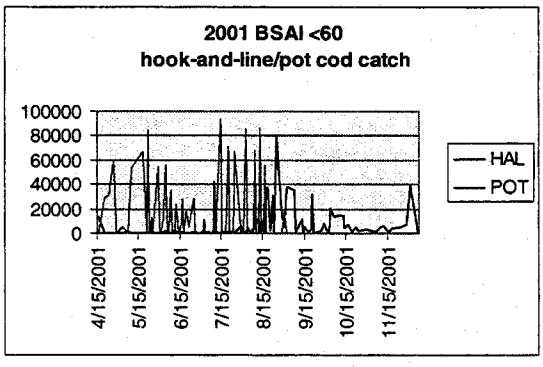
quarter 1	quarter 2	quarter 3	quarter 4	TOTAL
0.6%	1.5%	1.3%	0.4%	3.8%
trimester 1	trimester 2	trimester 3		
0.9%	2.4%	0.4%		3.8%

Table 3.33a relates the percentage of the total jig *harvest* taken by quarter and trimester. Table 3.33b shows the percentage of the *original allocation* harvested in the respective time periods, in order to show how much jig quota would need to be allocated to each season, on average, in order to prevent constraining the jig sector. Recall that the seasonal allocations proposed under Option 3 are as follows:

(a) 25% - 25% - 25% - 25%
(b) 50% - 30% - 15% - 5%
(c) 33.3% - 33.3% - 33.3%
(d) 60% - 25% - 15%
(e) Provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process.
(f) 40% - 20% - 40%

On average during the past five years (1997 - 2001), the jig sector has harvested less than 4% of its total allocation, and not more than 2 percent in any one quarter, or 3 percent in any one trimester. Thus, it appears that none of the suboptions to seasonally apportion the jig fishery would constrain this sector from harvesting its historical amount of cod quota and then some.

In order to meet the intent of the option, it is also important to consider the temporal variations in the <60' hook-and-line and pot catcher vessel fleet. Recall that since Amendment 64 has been in place, the <60' class has harvested <1% of the total fixed gear cod catch in 2000 and 2001, and about 1.4% in 2002. As mentioned previously, the optimal fishing time for the <60' catcher vessel cod fleet is in the summer, both because of weather and because the cod are better aggregated. Reportedly, most <60' fixed gear vessels start fishing sometime in April and would prefer to keep fishing for cod throughout the summer, until about August/September. In recent



years, the timing of the <60' cod fishery has also been affected by the availability of quota; and the fact that hook-and-line catcher vessels are constrained by the halibut bycatch cap attributed to the hook-and-line BSAI cod fishery as a whole. The hook-and-line BSAI Pacific cod fishery is not apportioned a halibut bycatch allowance from June 10 to August 15, effectively closing the directed Pacific cod fishery for hook-and-line vessels during that time.

Table 3.34 shows that the <60' fleet on average has harvested the majority of its quota (average of 52%) in the months of April - August in the past five years (1997 - 2001), with the exception of 2000, in which the directed hook-and-line cod fishery was on bycatch status due to halibut bycatch in early March. On average, the vast majority was harvested before the fall; 76% of the total harvest was taken prior to September. Given that the hook-and-line and pot catcher vessel <60' fleet is so weather dependent, it may not benefit from receiving reallocated quota after September, as these smaller vessels may not be able to stay on the fishing grounds much later than September. Note that relatively little BSAI Pacific cod is being harvested by this sector after September (20% on average).

Table 3.34: Percentage of BSAI Pacific cod catch by hook-and-line and pot vessels <60',by quarter and trimester, 1997 - 2001

YEAR	1st quarter (Jan. - March)	2nd quarter (April - June)	3rd quarter (July - Sept.)	4th quarter (Oct. - Dec.)
1997	12%	42%	34%	12%
1998	17%	54%	2%	27%
1999	28%	50%	9%	13%
2000	57%	1%	10%	32%
2001	4%	34%	51%	12%
Ave 97-01	24%	36%	21%	20%
YEAR	1st trimester (Jan. - April)	2nd trimester (May - Aug.)	3rd trimester (Sept. - Dec.)	
1997	13%	73%	14%	
1998	26%	45%	29%	
1999	75%	5%	20%	
2000	57%	3%	40%	
2001	12%	69%	19%	
Ave 97-01	37%	39%	24%	

Source: ADF&G fishtickets, 1997 - 2001. Catch (mt) is not provided due to confidentiality concerns. Note that Amendment 64 was in place in September 2000.

In addition, it is preferable for participants to receive a reallocation in a manner that allows the fleet to continue fishing, as opposed to stopping and starting intermittently. The earlier the reallocation, the more time for participants to plan their fishing year. Thus, the most practical and beneficial option under (a) - (f) may be one in which the jig fishery can continue year-round and the <60' fleet receives the reallocation prior to its harvesting its share of the BSAI Pacific cod TAC. In this sense, notwithstanding a considerable

increase in effort in the BSAI Pacific cod jig fishery, the jig sector would be minimally affected, and the <60' fleet would benefit from a longer summer cod season. As stated previously, the cod harvest by the hook-and-line catcher processor fleet and pot fleet, however, would be reduced by a maximum of 3.7% and 0.9%, respectively, based on the average jig reallocations received by those sectors during 1995 - 2001.

Suboptions (a) - (f)

Considering the above objectives, the fixed seasonal apportionments proposed under Suboptions (a) - (d) or (f) would allow the current level of effort in the jig fishery to continue without constraint. The jig sector harvested an average of 6% of its entire Pacific cod allocation in 1995 - 2001 (see Table 3.32). In 1995, the jig sector harvested about 14.5% of its original quota, but since that year, no more than 6% has been harvested in any given year, averaging just 5.7% annually over this period. If 1995 is excluded, this sector harvested an average of 4% of its original allocation in the past six years (1996 - 2001). In addition, the past few years have not shown an increasing trend in the number of jig vessels participating in the BSAI Pacific cod fishery nor in the catch attributed to the jig sector. Thus, given the current effort in the fishery, a seasonal apportionment in which at least 5% of the entire jig allocation remains in each trimester or quarter should not affect the jig sector or temporally constrain its participants.

Suboptions (a) - (d) and (f), which propose a set seasonal apportionment in regulations, allow a minimum of 5% of the jig allocation to be available after September (in the case of trimester apportionments) or October (in the case of quarterly apportionments). Suboption (f) allows for the most quota to be reallocated in the last trimester (40%) and Suboption (b) allows for the least amount to be allocated to the last quarter (5%). Should concern exist that the jig fishery will increase its efforts in the BSAI Pacific cod fishery in the near future, one may want to apportion the seasons so that more than 5% remains in any one trimester or quarter. However, note from Table 3.33a that in recent years, an average of 0.4% of the jig allocation was harvested in the last trimester and in the last quarter, and never more than 4% overall. Thus, providing for at least 5% of the jig allocation in each quarter or trimester is a fairly conservative scheme in which to reallocate unused jig quota, as the jig sector has not harvested nearly that amount in the past several years. Suboption (e) would provide a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector would be determined annually during the TAC setting process. Thus, Suboption (e) also provides flexibility, or the maximum latitude, in which to apportion sufficient quota to the jig fishery to prevent constraining that sector.

As for the timing of the <60' catcher vessel cod fleet, it may be appropriate to allocate more cod quota in the first part of the year than the latter half, due to the fact that the <60' fleet also appears to prefer to fish during the summer months. Under Suboptions (a) - (d) and (f), the jig quota would be reallocated either two or three times during the year. Under Suboptions (a) or (b), in which there are four jig seasons, unused cod quota would potentially be reallocated at the end of each jig season, in March, June, and September. Under Suboptions (c), (d), or (f), in which there are three jig seasons, unused cod quota would potentially be reallocated in April and August.

Under **Suboption (a)**, up to 25% of the jig quota could be reallocated in March, 25% in June, and 25% in September. The final 25% would be apportioned to October 1 - December 31, and could potentially be reallocated late in the year, should additional quota be projected to remain unused. In 2003, the jig allocation is 3,839 mt, which means that each seasonal allocation would be 960 mt. Recall that most of the <60' cod fleet does not typically start fishing until April, and thus receiving quota reallocated from the jig sector in March would front-load the <60' allocation, reducing the probability that the <60' fleet would take its entire

share of the TAC and have to stop and wait for a reallocation to continue fishing. The potential for this occurring is clearly dependent on the amount of effort in the <60' cod fishery, and could vary each year, but in 2002, the <60' fleet harvested its entire 1.4% allocation by June 11. Thus, a reallocation to this fleet may be most effective by April or May. This is an important consideration, under any of the scenarios proposed under Suboptions (a) - (e), as front-loading the allocation with a sufficient amount of quota to prevent stopping and starting will allow fishermen to better plan their fishing year, avoid staging and other logistical costs associated with laying-up, and operate more efficiently. It is not possible to empirically estimate these cost savings, given available information on the variable and fixed cost structures for these vessels, but these may be important considerations, bearing on the economic viability of many of these very small operations.

Additional quota in March may allow the <60' fleet to continue fishing through June, with the possibility of a second reallocation in late June to allow continued fishing throughout the summer months. Some members of industry contend that because the fleet is so weather dependent, the <60' sector cannot as readily utilize additional quota after September. Thus, the potential for use of reallocated jig quota by the <60' fleet in September or later may be much reduced. Should NMFS determine that the <60' fleet could not harvest additional quota reallocated from the jig sector, under Option 1, that quota would be reallocated to the hook-and-line catcher processor sector. Thus, under Suboption (a), it is most likely that the <60' fleet would only benefit from the first two reallocations, representing a maximum of 50% of the jig allocation (1,920 mt in 2003). Under the 2003 TAC, this would still more than double the original allocation to the <60' hook-and-line and pot catcher vessels of 1,363 mt.

Under **Suboption (b)**, up to 50% of the jig quota could be reallocated in March, 30% in June, and 15% in September. The last jig allocation would be 5% and could be used from October 1 - December 31. Quota could potentially be reallocated late in the year should additional quota be projected to remain unused during the last season. Using the 2003 BSAI Pacific cod TAC, the jig allocation was 3,839 mt, which means that the first seasonal reallocation could have been a maximum of 1,920 mt in March. This scenario would more than double the <60' allocation in 2003 (from 1,363 mt to a maximum of 3,283 mt), before most of the <60' fleet typically start fishing. This would greatly enhance the ability of the <60' fleet participants to plan their fishing strategies and reduce the probability that this sector would take its entire share of the TAC and have to stop and wait for a reallocation to continue fishing. Additional quota in March would likely allow the <60' fleet to continue fishing through June, with the possibility of a second reallocation in late June to allow continued fishing in the summer months.

Under Suboption (b), a maximum of 80% of the jig quota could be reallocated to the <60' hook-and-line and pot catcher vessel fleet by late June. Again, the potential for use of reallocated quota after September is fairly low. However, NMFS inseason managers should be able to determine, due to weather, effort in the fishery, the number of participating catcher vessels, and other circumstances, whether the fleet would be able to harvest additional quota after the first reallocation. Although each year may vary considerably, it is most likely that the <60' fleet could only benefit from the first two reallocations, representing a maximum of 80% of the jig allocation (3,071 mt in 2003). Under the 2003 TAC, this would more than triple the original allocation to the <60' hook-and-line and pot catcher vessels of 1,363 mt.

Under **Suboption (c)**, up to one-third of the jig quota would be reallocated in April and one-third in August. The third trimester for the jig fishery would be from September 1 - December 31, and cod quota could potentially be reallocated late in the year should a portion of the remaining one-third of the jig allocation be projected to remain unused. In 2003, the jig allocation was 3,839 mt, which means that the first seasonal allocation would have been 1,278 mt. Using the 2003 TAC, if 1,278 mt was reallocated to <60' sector, it would result in almost doubling the <60' allocation (from 1,363 mt to a maximum of 2,641 mt) in late April.

This would result in twice as much quota available to the <60' fleet for fishing throughout the summer months, and the timing of the first allocation would reduce the probability that the <60' fleet would take its entire share of the TAC and have to stop and wait for a reallocation to continue fishing, incurring all the costs of laying-up, cited above. Under Suboption (c), a maximum of 33.3% of the jig quota could be reallocated to the <60' hook-and-line and pot catcher vessel fleet before the end of the summer, with a possibility of another 33.3% of the jig quota being reallocated by late August or early September. Again, the potential use of reallocated quota by this fleet after September is fairly low, thus, the <60' fleet may only be able to sustain cod fishing from the first reallocation, representing a maximum of 33.3% of the jig allocation (1,278 mt in 2003). Under the 2003 TAC, this would not quite double the original allocation to the <60' hook-and-line and pot catcher vessels of 1,363 mt.

Suboption (d) would result in a 60% - 25% - 15% seasonal apportionment of the jig quota, meaning that up to 60% of the jig quota could be reallocated in April, with the remaining 40% available after August (25%) and possibly November (15%). Using the 2003 BSAI Pacific cod TAC, this means that 2,303 mt would potentially be available to reallocate to the <60' fleet in April, increasing the total cod quota available to the <60' fleet by more than 2.5 times (3,666 mt). Of all of the fixed suboptions, Suboption (d) potentially provides for the most quota to be available to the jig fishery in the first season. Front-loading the first reallocation would also benefit the <60' fleet by considerably increasing its quota at a time when the fleet has just started fishing BSAI Pacific cod. Thus, there is a reduced risk of having to close the <60' cod fishery intermittently while the fleet waits for quota reallocated from the jig sector, incurring possible costs associated with laying-up.

Under Suboption (d), a maximum of 60% of the jig quota could be reallocated to the <60' hook-and-line and pot catcher vessel fleet by April, with the possibility of a total of 85% of the jig quota being reallocated by late August or early September. However, as stated previously, it is more likely that the <60' cod fleet would be capable of taking advantage of a reallocation earlier in the summer, as some smaller vessels may not stay on the fishing grounds later than August or September due to weather. Thus, the <60' fleet may only be able to sustain cod fishing from the first reallocation, representing a maximum of 60% of the jig allocation (2,303 mt in 2003). Under the 2003 TAC, this would not quite triple the original allocation to the <60' hook-and-line and pot catcher vessels of 1,363 mt.

Suboption (e) is the only suboption under Option 3 which does not set a fixed seasonal jig apportionment in regulations. Suboption (e) proposes to establish a regulatory framework such that the seasonal allocations of BSAI Pacific cod to the jig sector are determined annually and provided for in the annual TAC setting process. Therefore, while the jig allocations would be set in regulation, they would be determined on an annual basis, retaining flexibility to change according to recent and expected effort in the jig fishery.

The advantages of Suboption (e) are in the flexibility it provides to establish the seasonal jig allocations on a yearly basis, according to information on the past year's jig fishery and the anticipated harvest of BSAI Pacific cod by vessels using jig gear in the upcoming fishing year. This option does not compromise the 2% jig share of the BSAI Pacific cod TAC, which is still available to the jig fishery at the beginning of the season on January 1. It does, however, allow NMFS the discretion to set the seasonal apportionments as deemed appropriate each year, based on the knowledge of the fishery and expected effort. It is assumed that under Suboption (e), if there is an expectation that the jig fishery will continue to harvest only a small percentage of its allocation (an average of 4% during 1997 - 2001), NMFS fishery managers could apportion a large percentage of the jig quota in the first season, so that a reallocation could occur early in the year and allow other small boat participants to harvest that cod. For example, the jig fishery could be apportioned 90%

of its entire quota in January - June. Should a portion of that quota be projected to remain unused, one or more reallocations could occur prior to the season's end. Staff assumes that fishery managers would use their experience and discretion to determine when the reallocation(s) should occur, and that if it is clear that insufficient effort exists in the jig fishery to harvest the seasonal cod allocation, NMFS could potentially reallocate quota earlier than June if necessary to sustain the <60' fixed gear fishery.

Suboption (e) would therefore require language in the regulations that gives the authority to allocate BSAI Pacific cod to jig gear among seasons that are specified in the regulations. The regulations would specify the particular jig seasons, but the apportionments to each season would be determined annually during the TAC specification process in December. The criteria for determining how the 2% jig allocation would be apportioned among the seasons would also be in regulations, as well as discretion on how unharvested TAC would be reallocated. Actual seasonal apportionments would then be established in the annual harvest specification process. Draft regulatory language, mirroring what was in place for the hook-and-line and pot BSAI cod fishery prior to Steller sea lion protection measures, is suggested for review as follows:

> *(X) Seasonal allowances*
>
> *(A) Time periods. NMFS, after consultation with the Council, may divide the directed fishing allowance allocated to vessels using jig gear under paragraph (X) of this section among the following [insert number of] periods: [insert seasons here]*
>
> *(B) Factors to be considered. NMFS will base any seasonal allowance of the Pacific cod allocation to vessels using jig gear on the following information:*
>
> *(1) Seasonal distribution of Pacific cod relative to prohibited species distribution.*
> *(2) Variations in prohibited species bycatch rates in the Pacific cod fisheries throughout the fishing year.*
> *(3) Economic effects of any seasonal allowance of Pacific cod on the jig-gear fisheries.*
>
> *(C) Unused seasonal allowances. Any unused portion of a seasonal allowance of Pacific cod allocated to vessels using jig gear will be reallocated, in a manner determined by NMFS, after consultation with the Council, to vessels less than 60 feet length overall using hook-and-line gear or pot gear.*

Note that the above regulatory language is a starting point provided to help decisionmakers envision how Suboption (e) may be implemented. Should this type of language be approved under Suboption (e), NMFS and the Council would need to determine the number of jig seasons in a given year and specify the dates of those seasons in regulation. NMFS and the Council would also need to establish the factors that would be considered (under (B) above) during the TAC setting process to determine the percentage of the jig quota apportioned to each season.

Given that the jig fishery has harvested an average of 6% of its annual allocation (2% of the BSAI Pacific cod TAC) in the past seven years, a modification of Suboption (e) may also be worth considering. A potential variation would be to continue to provide for the 2% jig allocation, but conduct the reallocation of projected unused quota in the TAC specification process in December, based on what NMFS and the Council anticipate the jig fishery can harvest in the upcoming year. The difference between this modification and Suboption (e) as presented above is that the reallocation would happen in December,

prior to the start of the fishing year, as opposed to later in the year after the first jig season is near completion.

The primary benefits of providing a larger allocation upfront to the small boats using hook-and-line or pot gear are that it would allow the participants to better plan their fishing activities for the year and lessen the need for several reallocation processes. This would save time, reduce the administrative workload of NMFS' inseason managers, and, at least potentially, avoid imposing on the <60' fleet the costs cited earlier. A related potential impact is that the hook-and-line and pot catcher vessels <60' may be able to harvest more of the reallocated jig quota under this scenario as they are better able to plan their season, resulting in less quota being subsequently reallocated to the hook-and-line catcher processor fleet after September 15.

This interpretation of Suboption (e) could be implemented in a manner similar to the way the Atka mackerel jig fishery is currently managed in the Eastern Aleutian Islands and Bering Sea. The original 2% allocation to the jig fishery would remain. However, during the specification process, the Council and NMFS would determine how much of the 2% allocated to jig gear is anticipated to be harvested in the upcoming year. If the Council thinks the jig fishery can harvest its entire 2% cod allocation, the entire jig allocation can be kept in place for use by jig vessels on January 1, and any unused quota can be reallocated later in the year as appropriate to the hook-and-line and pot vessels <60'. However, the Council would also have the option to move a portion of the 2% jig allocation to the small boat fishery prior to the start of the fishing season on an annual basis, which would make it easier for the alternate gears to plan their fisheries for the year.

This modification of Suboption (e) may be viable, in that the jig fishery has operated at a fairly consistent level for several years, not having harvested the great majority of its allocation since it was established. Thus, it may be possible to develop fairly good estimates of future jig effort on a yearly basis, by evaluating the recent year's fishery and receiving public feedback regarding expected effort in the upcoming year during the December Council meeting. Note that this option would still provide the flexibility to allow for the entire jig allocation to be harvested by vessels using jig gear should effort increase significantly in that fishery over time.

As mentioned previously, the management system described above is similar to that in place for the Atka mackerel jig fishery in the Eastern Aleutian Islands and Bering Sea subarea (50 CFR 679.20(a)(8)). Thus, the regulations necessary to implement this variation of Suboption (e) for the BSAI Pacific cod fishery would likely mirror those in place for Atka mackerel, as follows:

> *(X) Pacific cod TAC, BSAI*
> *(i) Jig gear. Vessels using jig gear will be allocated* ***up to 2 percent*** *of the TAC of Pacific cod specified for the Bering Sea/Aleutian Islands, after subtraction of reserves, based on the following criteria:*
> *(A) The amount of Pacific cod harvested by vessels using jig gear during recent fishing years;*
> *(B) The anticipated harvest of Pacific cod by vessels using jig gear during the upcoming fishing year; and*
> *(C) The extent to which the jig-gear allocation will support the development of a jig-gear fishery for Pacific cod while minimizing the amount of Pacific cod TAC annually allocated to vessels using jig gear that remains unharvested at the end of the fishing year.*

The following regulatory language would also need to be added in order to authorize that the remaining jig cod quota would be allocated to hook-and-line catcher vessels and pot vessels <60':

> *(ii) Other gears. The remainder of the Pacific cod TAC under (i), after subtraction of the jig gear allocation and reserves, will be allocated to vessels less than 60 fleet length overall using hook-and-line gear or pot gear to increase directed allowances established under this section.*

Finally, **Suboption (f)** would result in a 40% - 20% - 40% seasonal apportionment of the jig quota, meaning that up to 40% of the jig quota could be reallocated in April, with the remainder available after August (20%) and possibly November (40%). Using the 2003 BSAI Pacific cod TAC, this means that 1,536 mt would potentially be available to reallocate to the <60' fleet in April, essentially doubling the total cod quota available to the <60' fleet (2,899 mt) over the summer.

Of all of the fixed suboptions, Suboption (f) potentially provides for the most quota to be available to the jig fishery in the last season. Under Suboption (f), a maximum of 40% of the jig quota could be reallocated to the <60' hook-and-line and pot catcher vessel fleet by April, with the possibility of a total of 60% of the jig quota being reallocated by late August or early September. However, as stated previously, it is more likely that the <60' cod fleet would be capable of taking advantage of a reallocation earlier in the summer, as some smaller vessels may not stay on the fishing grounds later than August or September due to weather. Thus, the <60' fleet may only be able to sustain cod fishing from the first reallocation. In effect, because suboption (f) allows for the largest apportionment in the third season compared to the other suboptions, more of the reallocated jig quota may remain unused by the <60' sector and eventually be reallocated to the hook-and-line catcher processors late in the year.

Summary of Option 3, Suboptions (a) - (f)

All of the suboptions under Option 3 provide a mechanism by which the <60' hook-and-line and pot catcher vessel sector may receive cod quota throughout the year that is projected to remain unused by the jig fishery. None of the suboptions would likely constrain the jig sector more than any other, as this sector has taken less than 4% of its entire allocation in the past five years and each option provides the opportunity for the jig fishery to expand significantly beyond its current effort and harvest its entire 2% of the BSAI Pacific cod TAC if anticipated (3,839 mt in 2003).

The suboptions differ primarily in the amount of quota that is allocated to each jig season, and therefore the amount that may be reallocated to the <60' hook-and-line and pot catcher vessel sector at the end of each season. As mentioned previously, the main concerns of the <60' fleet are the ability to fish during the summer months in optimal weather conditions, and the ability to plan ahead for the fishery and continue fishing without stopping and starting intermittently, an activity which imposes direct logistical and operational costs on the vessel. A related consideration is the efficiency of the mechanism selected, in that each additional reallocation represents increased time and administrative workload for NMFS inseason managers.

Note however, that regardless of the suboptions under consideration to apportion the jig quota and extend the <60' cod season through the summer, the <60' hook-and-line catcher vessels are subject to a halibut bycatch allowance that applies to the hook-and-line BSAI Pacific cod fishery as a whole. In 2002, the halibut bycatch allowance was apportioned as follows:

Non-trawl fisheries for Pacific cod:	January 1 - June 10	320 mt
	June 10 - August 15	0 mt
	August 15 - December 31	455 mt
	TOTAL	775 mt
	Groundfish pot & jig	Exempt

Thus, without a modification to the requirements of the halibut bycatch allowance for the non-trawl BSAI Pacific cod fisheries, the <60' hook-and-line catcher vessels will continue to be unable to participate in the directed BSAI Pacific cod fishery from noon on June 10 through noon on August 15. Thus, the <60' cod fishery will continue to essentially be a pot fishery during June 10 - August 15, and any additional quota reallocated to the small boat fleet will represent a potential increase to the <60' pot share. This issue has not received substantial attention since the implementation of the fixed gear allocations under Amendment 64, since the <60' fleet did not harvest its entire allocation in 2000 or 2001. In 2002, the fishery was closed on June 11 for reaching its share of the TAC (1.4%). While the 2002 small boat allocation was primarily harvested by pot vessels <60', this was because the general hook-and-line fishery was also open until June 10. Thus, any hook-and-line catch attributed to <60' vessels was applied to the 0.3% allocation to hook-and-line catcher vessels.

A summary of the jig apportionments and reallocation schemes under Option 3, Suboptions (a) - (f) is presented in Table 3.35. Assuming that the <60' fleet would not stay on the cod fishing grounds much later than August or September due to weather conditions, any quota that is potentially reallocated after that time will not likely be harvested by the <60' fleet. If the <60' fishery was winding down by September, then this quota would be reallocated to the hook-and-line catcher processor fleet in mid-September (under current regulations and Option 1).

Table 3.35: Jig seasons and projected maximum amount of BSAI Pacific cod quota (in mt) available for reallocation to the <60' fixed gear fleet under Option 3, Suboptions (a) - (f), using the 2003 TAC

SUBOPTION	**1st quarter (Jan. - March)**	**2nd quarter (April - June)**	**3rd quarter (July - Sept.)**	**4th quarter (Oct. - Dec.)**
Suboption (a): 25 - 25 - 25 - 25%	960 mt	960 mt	960 mt	960 mt
Suboption (b): 50 - 30 - 15 - 5%	1,920 mt	1,152 mt	576 mt	192 mt
	1st trimester (Jan. - April)	**2nd trimester (May - Aug.)**	**3rd trimester (Sept. - Dec.)**	
Suboption (c): 33.3 - 33.3 - 33.3%	1,278 mt	1,278 mt	1,278 mt	
Suboption (d): 60 - 25 - 15%	2,303 mt	960 mt	576 mt	
Suboption (e):	Seasonal apportionment of the BSAI Pacific cod jig allocation will be determined on an annual basis during the TAC-setting process and provided for in regulations			
Suboption (f): 40 - 20 - 40%	1,536 mt	768 mt	1,536 mt	

Note: The jig share (2%) of the 2003 BSAI Pacific cod TAC is 3,839 mt.

Given the weather constraints of the small boat fleet, under the set of suboptions for fixed seasonal jig allocations, **Suboptions (b) and (d)** appear to favor the general operating pattern of the <60' fleet the most. This is because these options have the potential to allocate the most quota to the <60' fleet prior to the fall. **Suboption (b) could provide for a reallocation of up to 80% of the jig quota by June, and Suboption (d) could provide for a reallocation of up to 85% of the jig quota by August.** By comparison, Suboption (a) could potentially reallocate 50% of the jig quota by June, and Suboption (c) could provide for a reallocation of 67% of the jig quota by August. Similarly, Suboption (f) would provide for a reallocation of up to 60% by August. Whether the timing of either of these scenarios (June versus August) is more beneficial than the other will vary with the fishery each year, however, the more quota that is reallocated earlier in the year, the more beneficial for planning purposes for the small boat fleets. In addition, NMFS managers would have the flexibility to reallocate at any time within each season, for instance, prior to end of the second trimester in August, if very few jig vessels have been prosecuting the fishery. Access to these additional cod may still be constrained for the <60' hook-and-line sector, however, due to an absence of halibut PSC quota.

Suboption (e), in which the seasonal apportionment of the BSAI Pacific cod jig allocation is determined during the annual TAC setting process, may also be developed to conform to the general operational pattern of the <60' hook-and-line and pot catcher vessel fleet. The regulatory framework in place would allow NMFS and the Council to adapt the jig apportionments to what is expected to occur in the fishery each year, and provide flexibility in the reallocation process. However, while Suboption (e) could front-load the <60' allocation by reallocating quota early in the year, it still only allows for a reallocation sometime after the fishery has started.

A modification of Suboption (e) would provide a regulatory framework that would allocate *up to 2%* of the TAC to the jig fishery during the TAC setting process, based on criteria in regulations. If the Council and NMFS determined that the jig fishery will not likely harvest its entire TAC in the upcoming year, a portion of the allocation could be rolled into the <60' hook-and-line and pot catcher vessel allocation for the start of the fishing year on January 1. This option would continue to support development of a jig gear fishery for BSAI Pacific cod, while minimizing the number of reallocations necessary to prevent leaving the TAC unharvested at the end of the fishing year. It would also provide a longer timeframe for the alternate gears in the small boat fleet to plan their fishing activities for the year. This factor may prove more important if the <60' hook-and-line catcher vessels continue to be subject to the halibut bycatch allowance of the hook-and-line fleet (catcher vessels and catcher processors) as a whole.

Note that while the amount of reallocated quota that would potentially be able to be used by the <60' catcher vessel fleet varies under each suboption, the risk that some of the BSAI Pacific cod TAC would remain unused overall does not change. If it is determined that the <60' fishery would not harvest its entire cod allocation in a given year, including any quota reallocated from the jig sector, this quota would be reallocated to the hook-and-line catcher processor fleet in mid-September (under current regulations and Option 1). Thus, Suboptions (a) - (f) affect the likely *distribution* of reallocated jig quota among the fixed gear sectors, but do not affect whether quota would remain unharvested by the fixed gear sectors at the end of the year. As stated previously, if the jig sector continues to harvest an average of <6% of its total allocation, one may expect under Suboptions (a) - (d) and (f), the <60' hook-and-line and pot catcher vessel sector to harvest slightly less than 50%, 80%, 67%, 85%, and 60% of the total jig quota, respectively. Thus, under Suboptions (a) - (d) and (f), hook-and-line catcher processors may continue to receive the remaining 50%, 20%, 33%, 15%, and 40% of the annual jig allocation, respectively, in September or later.

Comparison of Rollover Options 1-3

The table below shows the direction of the potential reallocations under Options 1- 3.

Any unharvested portion of BSAI Pacific cod quota from the following gear sectors will be reallocated as follows under Alternative 2 and 3, Options 1 - 3:

Option 1	**Option 2**	**Option 3**[1]
Hook-and-line catcher vessels; <60' hook-and-line and pot vessels ↓ hook-and-line catcher processors	Jig and trawl sectors ↓ 95% hook-and-line catcher processors 5% pot vessels	Jig sector ↓ <60' hook-and-line and pot vessels ↓ hook-and-line catcher processors

Note that Option 1 and Option 2 represent the status quo.
[1]The final reallocation to hook-and-line catcher processors under this option is identified under Option 1. If Option 1 is not selected, NMFS inseason managers would determine how to reallocate any unused quota from the <60' catcher vessels. It is likely that the hook-and-line sector would still receive the majority of this reallocation even without selection of Option 1.
Note also that Option 2 and Option 3 are incompatible with respect to reallocating jig quota.

Table 3.36 shows the projected effect of Options 2 and 3 on the harvest and estimated gross first wholesale revenues of each of the fixed gear sectors. It has been discussed previously that Option 1 would likely have very little or no affect on the reallocations to other sectors, as both the hook-and-line catcher vessels and <60' hook-and-line and pot vessels are projected to harvest their full allocations in future years. For this reason, Option 1 is not included in the table below. In addition, none of the options as currently stated would reallocate unused quota to the hook-and-line catcher vessel sector. Because this sector would remain unaffected, it is not included in the table below.

It is estimated that rollover harvests from the jig and trawl sectors under Option 2 would generate an estimated $19.5 million in gross first wholesale revenues from hook-and-line catcher processors and $1.6 million from pot catcher processors. No quota would be reallocated to the <60' catcher vessels under Option 2. Under Option 3, projections indicate that the hook-and-line catcher processors would generate $16.0 million in gross first wholesale revenues, pot catcher processors $1.3 million, and $8.2 million from <60' catcher vessel harvests delivered to shoreside plants. It is assumed under all scenarios that each sector harvests the entire rollover amount it was allocated. Similar to the discussion of revenues in Section 3.4.4.1, given the level of uncertainty in the estimation of total gross revenues, it is not advisable that these comparisons alone provide the basis for a modification to the way quota is reallocated.

Table 3.36: Comparison of Options 2 and 3 under Alternatives 2 and 3, using average 2000- 2002 reallocated quota and 2001 prices

Alternative/ Rollover Options	Projected maximum effect on allocations to and first wholesale revenues[1] of:					
	Hook-and-line CPs		Pot Sector		Hook-and-Line and Pot CVs <60'	
Alternative 2 or 3	harvest (mt)	revenue ($ mil)	harvest (mt)	revenue ($ mil)	harvest (mt)	revenue ($ mil)
Option 2	16,150	$17.4	850	$1.0	0	0
Option 3[2]	13,243	$14.2	697	$0.9	3,060	$3.8

Note: This table assumes that the average amount of reallocated quota in 2000 - 2002 continues into the future and that each sector can harvest all of the quota reallocated to it. In actuality, the amount of reallocated quota resulting from these options will vary, perhaps considerably, each year. An average of 17,000 mt of reallocated jig and trawl quota (based on 2000 - 02) was used for the projections, 82% of which is (13,940 mt) attributed to quota reallocated from the trawl sector.

[1]Estimates of gross first wholesale revenues generated from each sector are based on 2001 estimated prices from the COAR data: Hook-and-line CPs ($1,075/mt); pot CPs ($1,184/mt); CVs ($1,258/mt). It is assumed that the pot sector rollovers are harvested equally by pot CPs and pot CVs.

[2]Option 3 assumes that the method for reallocating quota under Option 2 continues to apply to trawl reallocations, and Option 3 applies to all jig reallocations. Thus, quota reallocated from the trawl sector is still split 95:5% between hook-and-line catcher processors and pot vessels under Option 3.

3.4.4.3 Sunset provisions under the alternatives

Two options are provided for consideration under both Alternative 2 and Alternative 3 to provide for a sunset date by which the proposed separate fixed gear allocation action would expire. These options are not proposed under Alternative 1, since no separate fixed gear allocations would be in place under that alternative. Alternative 4 only addresses the split between pot catcher processors and pot catcher vessels, thus, it may only be selected in combination with Alternatives 2 or 3 in which the pot gear sector has a separate share of the Pacific cod TAC. Should Alternative 4 be selected with Alternative 2 or 3, the sunset provision selected would also apply to the separate pot gear allocations identified in Alternative 4.

The following options are provided for consideration under Alternatives 2 and 3:

Option 1: No sunset provision **(preferred alternative)**
Option 2: Sunset 5 years after implementation

Option 1 would allow the fixed gear allocations determined under Alternative 2 or 3 to be implemented without a sunset date attached, and Option 2 would require the fixed gear allocations to expire five years after implementation. As defined in the problem statement, the purpose of the action is to extend or modify the current fixed gear allocations so that serious disruption to the BSAI Pacific cod fixed gear fisheries does not occur. Separate BSAI Pacific cod allocations to the fixed gear sectors are deemed necessary to maintain stability in this fishery until comprehensive rationalization is completed. In this sense, the hook-and-line vessels dependent on the BSAI Pacific cod fishery contend that this sector needs protection from other fixed gear sectors which may increase their efforts in the fishery and erode the historical harvest share of the hook-and-line catcher processors. At the same time, the pot catcher processors contend that their historical harvest share needs similar protection from the pot catcher vessel sector. Distinct allocations to each fixed gear sector are proposed under Alternatives 2 and 3, and separate allocations to the pot catcher processors and pot catcher vessels are proposed under Alternative 4, in order to remedy the concerns outlined in the problem statements.

The impacts of distinct allocations (Alternative 2 and 3) to each fixed gear sector are outlined in Section 3.4.2 and 3.4.3, respectively. The impact of a split between the pot catcher processor and pot catcher vessel sector is outlined under Alternative 4 in Section 3.4.5. Thus, should separate fixed gear allocations be approved, under Option 1 the benefits and costs of each of the alternatives as described in these sections should continue into the future. This is assuming that the BSAI Pacific cod TAC will continue to be established in future years, with the understanding that the TAC will vary each year. The effects of each alternative on ex-vessel and first wholesale revenues are projected using the 2003 TAC.

Should Option 2 be selected, in which the fixed gear allocations would expire after five years, the benefits and costs of each of the alternatives as described in Sections 3.4.2, 3.4.3, and 3.4.5 would continue for five years (e.g., year 2004 - 2008). Upon expiration, the Council would need to take further action to initiate a new plan amendment to continue or modify the fixed gear allocations, unless a comprehensive rationalization program has been developed and implemented, in which case, these proposed actions would be superseded. Absent that, if no new amendment was initiated, the fixed gear allocations under this amendment would expire and the general impacts described under the no action alternative (Section 3.4.1) may be expected.

Currently, there is no sunset date on BSAI Amendment 46, which establishes the BSAI Pacific cod allocations to the jig (2%), trawl (47%) and fixed (51%) gear sectors. The Council elected not to include the sunset date after revising the original gear split (Amendment 24). The sunset date of December 31, 2003, on BSAI Amendment 64 necessitated the implementation of this amendment package, in order to continue the fixed gear allocations during and beyond 2004. A sunset date acts as a placeholder in regulation by which the Council and NMFS must review a prior action and initiate a new analysis to continue or modify that action. While the Council could decide to reconsider its action on an amendment at any time, one may contend that a sunset date holds the Council to reviewing an action by a specified date or risk the expiration of the regulations implementing that action. However, if the program is working as the Council had intended, a sunset date may increase the costs of management with little or no benefit.

A time certain review of a program may be considered the primary benefit of having a sunset date associated with a specific action, and thus, lack of a sunset provision may be considered a disadvantage to those concerned with the implementation or impacts of a fixed gear split. Stakeholders who would prefer a different alternative than that selected by the Council may benefit from having a set date in regulation which forces the action to be reviewed and potentially modified or eliminated. Conversely, those stakeholders sufficiently satisfied with the Council's preferred alternative may prefer to continue the allocations without potential disruption due to a sunset date. Lack of a sunset date may create a sense of 'permanence' to the action being considered, enabling more efficient and effective planning and investment by participants. The risk of instability (whether due to natural variability in stocks, or regulatory regimes) impose costs which must be taken into account. Instability makes access to funds in the financial markets more costly to obtain. Instability also makes negotiations for market access more problematic, as longer term supply of product to buyers is less certain. Operating margins will be thinner in an unstable environment because business planning cannot be extended with certainty, in order to capture economic efficiencies which would otherwise be attainable. Although the Council retains the authority to modify or revoke an action at any time through the normal Council process, including a sunset date in the preferred alternative expressly increases the analytical and administrative costs made necessary to continue an action, and places everyone on notice that, at a time certain in the near future, the prevailing status quo will come under re-examination (and heightened risk of modification).

Option 1 would allow the fishery to continue under the Council's preferred alternative, indefinitely, until such time the Council chose to review and potentially modify its previous action. Option 2 would provide for the allocations in the preferred alternative to expire five years after implementation. The regulations implementing the Council's preferred alternative are scheduled to be in place for the 2004 fishing season.

3.4.5 Alternative 4: Pot split (preferred alternative)

Alternative 4 would apportion the pot share of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories to be determined as a percentage of cumulative catches of the BSAI Pacific cod TAC by pot sector for:

Option 1: 1995-1999
Option 2: 1996-2001
Option 3: 1998 -2001 **(preferred alternative)**
Option 4: 2000, 2001

Note that Alternative 4 is only applicable in combination with Alternatives 2 or 3, as an overall fixed gear split is necessary to establish a separate pot share of the BSAI Pacific cod TAC in which to divide under Alternative 4. Thus, Alternative 2 or 3 may be selected to create separate allocations for hook-and-line catcher processors, hook-and-line catcher vessels, and pot vessels. Combined with that decision, an option under Alternative 4 may also be selected as part of the preferred alternative to further split the pot share of the BSAI Pacific cod TAC between pot catcher processors and pot catcher vessels.

In addition, under Alternative 4, each pot sector would receive a separate apportionment. Thus, should there also continue to be a separate allocation established for the <60' hook-and-line/pot catcher vessels under Alternative 2 or 3, the harvests made by <60' pot catcher vessels would accrue toward the general pot *catcher vessel* allocation until that fishery is closed. Only then would the <60' pot harvests start accruing toward the set-aside for <60' catcher vessels. This is consistent with the methodology for hook-and-line catcher vessels under the status quo.

In addition, two suboptions are proposed under Alternative 4 to address quota reallocated from the pot sectors.

Suboption: Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused by a specified date shall be reallocated as follows:

(a) Unused quota from either pot sector would be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors. **(preferred alternative)**
(b) Unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessel sector before it is reallocated to the pot catcher processor sector.

3.4.5.1 Impacts of no action on Alternative 4

Under Alternative 1 (no action), each member of each of the fixed gear sectors would compete with every other fixed gear cod fisherman to harvest his or her maximum individual share of the "common" BSAI Pacific cod TAC. Starting in September 2000, BSAI Amendment 64 apportioned the BSAI Pacific cod fixed gear TAC among hook-and-line catcher processors (80%), hook-and-line catcher vessels (0.3%), hook-and-line and pot vessels <60' (1.4%), and pot vessels (18.3%). This allocation scheme is roughly based on the relative catch histories of each sector from 1995 - 1998, with the exception of the <60' catcher vessel sector, which had harvested less than 1% of the fixed gear portion of BSAI Pacific cod during the years under consideration. Since the allocations were not effective until September 1, 2000, the first full year of fishing under the allocations was 2001. The allocations established under BSAI Amendment 64 expire on December 31, 2003.

Under Alternative 1 (no action), while the fixed gear sector as a whole would continue to receive 51% of the BSAI Pacific cod TAC, this alternative would allow pot and hook-and-line vessels to resume competing among and within sectors, to harvest as much of the fixed gear TAC apportionment as possible. Absent distinct fixed gear allocations, any Pacific cod quota projected to remain unused by other (trawl and jig) gear sectors would be reallocated to the overall fixed gear sector as deemed appropriate by the Regional Administrator. **Thus, under Alternative 1, Alternative 4 no longer remains a decision point.** The projected impacts of Alternative 1 are detailed in Section 3.4.1.

Should Alternative 2 or 3 be selected to split the fixed gear BSAI Pacific cod TAC, and Alternative 4 is not selected as part of the preferred alternative, this essentially mirrors the status quo. Because the pot share of the TAC varies from 18.3% under Alternative 2 to 17.8 - 18.1% under Alternative 3, there is essentially very little difference between the two alternatives relevant to the pot sector (0.5% of the 2003 TAC is 487 mt). Without establishing separate allocations for pot catcher processors and pot catcher vessels, all vessels using pot gear in the BSAI Pacific cod fishery would continue to compete for the pot share of the TAC. Thus, the impacts to each pot sector would essentially be the same as those described under Alternative 2 or Alternative 3.

In brief, since the implementation of Amendment 64 in 2000, the pot catcher vessel sector harvested a slightly higher percentage of the total pot sector harvest than in previous years. On average during 1995-1999 (excluding rollovers), pot catcher vessels harvested about 75 - 76% of the BSAI Pacific cod harvested with pot gear, and pot catcher processors harvested the remaining 24 - 25%. In 2000, the distribution was about 87% pot catcher vessels and 13% pot catcher processors, and in 2001, the distribution was about 86% pot catcher vessels and 14% pot catcher processors. As mentioned previously, a delayed opilio crab fishery opening may have contributed to a higher number of catcher vessel participants in 2000. A total of 113 pot catcher vessels participated in the BSAI directed Pacific cod fishery in 2000, the greatest number of individual vessels since 1995. In 2001, the number of unique catcher vessels was 75, which is more consistent with previous years and less than the seven-year average of 92. Since 2001, the crab fishery has gone back to its normal January start, but each season has also been relatively short.

While as of April 2003, NMFS had issued cod endorsements for use on 82 pot catcher vessel and 11 pot catcher processor licenses, staff estimates closer to 57 eligible pot catcher vessels and 6 pot catcher processors will be eligible in this fishery in the long-term. In addition, 11 of those 57 catcher vessels have interim licenses, thus, 57 may be considered a high estimate. With the reduced number of eligible vessels, it is difficult to project whether the distribution to pot catcher vessels would be close to the 1995 - 1999 average of 75 - 76% of the total pot harvest without a pot split, or continue to result in a slight increase to pot catcher vessels as occurred in 2000 and 2001. Note that from Table 3.22, these 57 vessels accounted for about 74% of the total pot catcher vessel harvest during 1995 - 2001. Similarly, the 6 eligible catcher processors accounted for about 75% of the total pot catcher processor harvest during 1995 - 2001. Thus, because these vessels represent the core group of harvesters from each sector, one may expect a distribution between sectors similar to that experienced in recent years.

In effect, the pot catcher vessel sector may maintain its increased harvest level if Alternative 4 is not selected. This is extremely difficult to predict, however, given the uncertainty regarding the future effort of each pot sector under Amendment 67. Although Table 3.22 indicates that the endorsed pot vessels accounted for the majority of pot harvests during the Amendment 67 qualifying period (1995 - 1999), it also shows that these vessels harvested slightly less of their sector's cod catch in the two most recent years for which we have available data (2000 - 2001). Anecdotal evidence suggests that several pot catcher processors

which identify themselves as primarily cod vessels and are dependent on the revenues from this fishery have not participated to as great an extent in recent years due to the competition from a substantial influx of pot vessels (both CPs and CVs) that previously fished mainly crab in the BSAI. The increased number of vessels fishing off a limited pot cod allocation of 18.3% since 2000 has made it less economically viable for several pot catcher processors with extensive catch histories in the BSAI Pacific cod fishery to gear up after the winter crab fisheries and participate in the cod fishery. Only two of the six pot catcher processors that staff estimates to be eligible for a cod CP endorsement under Amendment 67 also operate as catcher processors in the BSAI crab fisheries. See Tables 3.21 - 3.22 in Section 3.4.1 for participation patterns in the BSAI Pacific cod fishery during 1995 - 2001 by those pot vessels that staff estimates will be endorsed in the long-term.

In addition, several industry members note that while cod may be available in the fall, the cod product is of lesser quality after August or September. The pot catcher processor sector originally petitioned the Council for a pot split after the original fixed gear split was approved in October 1999, recognizing that a pot split would enable the pot catcher processor sector to: 1) avoid competing with a fluctuating and increasing number of pot catcher vessels moving into the cod fishery due to less stable crab fisheries, and 2) determine the sector's best time to fish due to marketing factors. Now that the seasonal allocations are in place for the pot sectors, even less cod is available in the winter/spring A season (Jan. 1 - June 10), and thus competition for the A season cod (60% of the TAC) has increased.

Related to the advantages described above, the pot catcher processor sector may also be in a better position to form a voluntary fishing cooperative should they receive a separate allocation. This represents an advantage for this sector, as cooperatives may allow the sector to better organize their prosecution of the BSAI Pacific cod fishery. Improved organization has the potential to increase efficiency in the fishery and allow the participants to fish slower and potentially provide more specialized products. While cooperatives in the pot sector could encompass the entire pot sector (for vessels ≥60'), or separate cooperatives could be formed by the ≥60' catcher vessel and catcher processor fleets, it is assumed that cooperatives are more likely to form if pot catcher vessels and catcher processors are given their own allocations. This assumption is based on the theory that cooperatives are more likely to form in fisheries where the participants activities are more homogeneous and there are fewer participants. However, if separate allocations are not implemented as part of this amendment package, the pot sector would still have the opportunity to form cooperatives. A more detailed section on the potential for forming fishing cooperatives as a result of this amendment package is provided in Section 3.6.

Discussions with industry members indicate that the endorsement requirements under Amendment 67 will benefit the pot catcher processor fleet with extensive histories that are dependent on the BSAI cod fisheries, as some of the pot catcher processors with large catching capacity that are primarily crab vessels will no longer be eligible to participate in the BSAI Pacific cod fishery. However, as of April 2003, NMFS has issued eleven pot CP endorsements on eleven licenses, six of which are interim status. So while staff estimates that only six pot catcher processors qualify under Amendment 67, several additional vessels will continue to be eligible to participate until the appeals process is completed. Likewise, while staff estimates that 57 pot catcher vessels ≥60' qualify under Amendment 67, NMFS has issued 82 pot CV endorsements as of April 2003, 33 of which are interim status. In any case, while the eligible pot catcher processors will likely benefit from the reduction under Amendment 67, this sector contends that a separate allocation is still necessary due to the number of pot catcher vessels that are estimated to remain eligible both in the short and long-term. Thus, it is not only competition within the pot catcher processor sector (addressed under Amendment 67) but competition between it and the pot catcher vessel sector that is at issue. This amendment package and the options under consideration address only the latter concern.

3.4.5.2 Impacts of Options 1 - 4

Alternative 4 would establish separate shares of the TAC for the pot catcher processor and pot catcher vessel sectors in the BSAI Pacific cod fishery, based on the distribution between sectors from:

Option 1: 1995-1999
Option 2: 1996-2001
Option 3: 1998 -2001 **(preferred alternative)**
Option 4: 2000, 2001

Table 3.37 below represents the pot sector catch distribution during 1995 - 2001. To be consistent with the overall fixed gear split under Alternatives 2 and 3, any cod harvests attributed to quota reallocated from other gear sectors is not included in determining the harvest percentages for each sector.[43] Note also that Amendment 64 has only been in effect since mid-2000, in which the pot sector was constrained to 18.3% of the total fixed gear BSAI Pacific cod TAC. This allocation was based roughly on pot harvests during 1995 - 1998.

Currently under Amendment 64, the pot sector is allocated 5% of the total jig and trawl quota reallocated to the fixed gear sector. There are no specific options proposed to split the pot share of the BSAI Pacific cod TAC between catcher processors and catcher vessels. Note that this 5% typically represents a fairly small amount of quota, an average of 763 mt during 2000 - 2002. Since the Council chose not to make a decision on whether to further split any quota reallocated to the pot sectors, either the Regional Administrator would apportion the quota as deemed appropriate on an annual basis or the reallocated quota would be split according to the same percentages determined for each sector under the preferred alternative.

Table 3.37 shows that on average during 1995 - 2001, the pot catcher processor and pot catcher vessel sectors harvested about 21.5% and 78.5% of the total pot cod catch, respectively. This table also shows that the pot catcher vessel sector has increased its relative share of pot cod harvests since 1999. On average during 1995 - 1999, the pot catcher processor sector harvested 24.2% and the pot catcher vessel sector harvested 75.8%. Thus, the pot catcher vessel sector has increased its average by almost 3% since 1999.

Table 3.37: Distribution of BSAI Pacific cod catch (mt) within the pot sectors, 1995 - 2001 (excluding reallocated quota)

Year	Total Pot Harvest	Pot catcher processors				Pot catcher vessels			
		catch (mt)	% of total pot harvest	# vessels	Ave catch/vessel	catch (mt)	% of total pot harvest	# vessels	Ave catch/vessel
1995	19,558	4,560	23.3%	8	570	14,998	76.7%	106	141
1996	30,967	8,130	26.3%	11	739	22,837	73.7%	91	251
1997	22,058	5,001	22.7%	13	385	17,057	77.3%	76	224
1998	12,623	3,525	27.9%	7	504	9,098	72.1%	73	125
1999	14,903	3,027	20.3%	13	233	11,876	79.7%	87	137
2000	17,129	2,177	12.7%	9	242	14,952	87.3%	103	145
2001	16,266	2,243	13.8%	6	374	14,023	86.2%	68	206
TOTAL	133,504	28,663	21.5%			104,841	78.5%		

Source: ADF&G fishtickets and NMFS Blend data, 1995 - 2001.

[43] See Table 3.3 for harvest data from each sector including reallocated quota. Reallocated quota was excluded from the total pot harvests using the same method described under Alternative 3 in Section 3.4.3.

Table 3.38 below shows the distribution of BSAI Pacific cod catch between the pot sectors under proposed Options 1- 4 and the baseline scenario (1995 - 2001). Percentage allocations are calculated by summing the catch of each pot gear group over the specified time period and dividing that amount by the total pot sector catch for that same time period. **Under Options 1 - 4, pot catcher processors would be allocated 13.2 - 24.2% and pot catcher vessels would be allocated 75.8 - 86.8% of the total pot share of the BSAI Pacific cod TAC.** Note that inclusion of the most recent years, in which the pot catcher vessel sector harvested a larger relative portion of the total pot harvest, decreases the resulting allocations to the pot catcher processor sector. Thus, Option 1 (1995 - 1999) and Option 4 (2000 - 2001) create the upper and lower bounds of the allocations. Note that the baseline scenario closely resembles Option 2.

The resulting percentages can be multiplied by the pot gear share under Alternative 2 (18.3% of the fixed gear TAC) and Alternative 3 (17.8 - 18.1% of the fixed gear TAC) to provide an estimate of the future years' catch under each of the options (Table 3.39). This method does not attempt to estimate future rollover catch amounts based on future TACs. Revenues at the ex-vessel level for pot catcher vessel deliveries, and at the first wholesale level for both pot sectors are also made in this section, based on the 2003 TAC (excluding rollovers). The methods used to determine ex-vessel and first wholesale price estimates are discussed in Appendix A.

Table 3.38: Distribution of Pacific cod catch (mt) within the pot sectors under Alternative 4, Options 1-4 (excluding reallocated quota)

Option	Total Pot Harvest	Pot catcher processors		Pot catcher vessels	
		catch (mt)	% of total pot harvest	catch (mt)	% of total pot harvest
Baseline (95 - 01)	133,505	28,663	21.5%	104,841	78.5%
1: (95-99)	100,110	24,243	24.2%	75,866	75.8%
2: (96 - 01)	113,947	24,103	21.2%	89,843	78.8%
3: (98 - 01)	60,922	10,972	18.0%	49,949	82.0%
4: (00 - 01)	33,395	4,420	13.2%	28,975	86.8%

Source: ADF&G fishtickets and NMFS Blend data, 1995 - 2001.

Recall that the options under consideration in Alternative 4 are based on the catch histories of all 226 unique pot catcher vessels and 26 pot catcher processors that participated during 1995 - 2001, while a much reduced fleet of vessels are eligible to participate in the fixed gear BSAI cod fisheries under Amendment 67 (effective January 1, 2003).

The pot sector as a whole would receive 18.3% of the fixed gear BSAI Pacific cod TAC under Alternative 2, and 17.8 - 18.1% depending on the variation of Alternative 3. The resulting percentages of the overall fixed gear TAC and the projected catch amounts that would be apportioned to pot catcher processors and catcher vessels under the options are shown in Table 3.39.

Because Alternative 2 would allocate slightly more cod quota (18.3%) to the pot sector as a whole than Alternative 3 (18.1%) or Alternative 3, Option 1 (17.8%), Alternative 2 results in a higher allocation to each pot sector. **Overall, however, there is a very modest difference between Options 1-4 when calculated**

under the various alternatives for the overall split. A more significant difference is found in a comparison of the options themselves.

Under Alternative 2 and Alternative 3, Options 1-4 would result in apportionments of 2.4 - 4.4% of the overall BSAI Pacific cod TAC to pot catcher processors. A range of 13.9 - 15.9% would be allocated to pot catcher vessels under Alternative 2 and 13.7 - 15.7% under Alternative 3. Under Alternative 3 and Option 1, the options would allocate between 2.4 - 4.3% of the overall BSAI Pacific cod TAC to pot catcher processors, and the remaining 13.5 - 15.4% would be allocated to pot catcher vessels. Thus, the pot catcher processor allocations do not differ by more than 0.1% under Alternatives 2 and 3, and the pot catcher vessel allocations do not differ by more than 0.5%. Among Options 1-4 however, the pot catcher processor and catcher vessel allocations vary by a maximum of 2%. Recall that using the 2003 TAC, 0.1% of the fixed gear BSAI Pacific cod TAC represents 97 metric tons, thus, 2% equates to 1,948 mt.

Catch distribution between endorsed pot catcher processors and pot catcher vessels

Table 3.39: Percent of total fixed gear BSAI Pacific cod TAC allocated to each pot sector under Alternative 4, Options 1-4, and projected catch using the 2003 TAC

Alt/Option	Pot catcher processors			Pot catcher vessels		
Alternative 2[1]	% of fixed gear BSAI cod TAC	mt (2003 TAC)	Average catch per vessel	% of fixed gear BSAI cod TAC	mt (2003 TAC)	Average catch per vessel
Baseline (95-01)	3.9%	3,798	633	14.4%	14,024	246
1: (95-99)	4.4%	4,285	714	13.9%	13,537	237
2: (96 - 01)	3.9%	3,798	633	14.4%	14,024	246
3: (98 - 01)	3.3%	3,214	536	15.0%	14,608	256
4: (00 - 01)	2.4%	2,337	390	15.9%	15,485	272
Alternative 3[2]						
Baseline (95-01)	3.9%	3,798	633	14.2%	13,829	243
1: (95-99)	4.4%	4,285	714	13.7%	13,342	234
2: (96 - 01)	3.8%	3,701	617	14.3%	13,926	244
3: (98 - 01)	3.3%	3,214	536	14.8%	14,413	253
4: (00 - 01)	2.4%	2,337	390	15.7%	15,290	268
Alternative 3, Option 1[3]						
Baseline (95-01)	3.8%	3,701	617	14.0%	13,634	239
1: (95-99)	4.3%	4,188	698	13.5%	13,147	231
2: (96 - 01)	3.8%	3,701	617	14.0%	13,634	239
3: (98 - 01)	3.2%	3,116	519	14.6%	14,219	249
4: (00 - 01)	2.4%	2,337	390	15.4%	14,998	263

Note: Average catch per vessel is based on the 2003 TAC and the number of vessels that staff estimates will have the appropriate LLP license and Pacific cod endorsement to participate in the directed BSAI cod fishery in the long-term. An estimate of 57 pot catcher vessels and 6 pot catcher processors is used.

[1]Alternative 2 (status quo) would continue to allocate 18.3% of the fixed gear BSAI P. cod TAC to the pot sector.

[2]Alternative 3 (modified status quo) would allocate 18.1% of the fixed gear BSAI P. cod TAC to the pot sector.

[3]Alternative 3, Option 1 would allocate 17.8% of the fixed gear BSAI P. cod TAC to the pot sector.

As mentioned previously, the 57 pot catcher vessels and 6 pot catcher processors estimated to be eligible under Amendment 67 harvested about 74% and 75% of the total harvest of each sector during 1995 - 2001, respectively. Thus, one would not expect the relative cod harvest history of the eligible vessels in the pot sectors to greatly differ when only the eligible vessels' catch is used to determine the split versus the catch of all pot vessels that participated in the specified years. Section 3.4.1 provides data on the catch distribution among pot sectors using the catch histories of only those pot vessels that are estimated to qualify for a Pacific cod endorsement under Amendment 67. This information is provided to show the potential difference between the historical catch distribution of all vessels in both pot sectors versus the distribution among only those pot vessels that would be fishing the actual pot quotas in the future.

Table 3.40 shows the distribution of catch in the pot cod fishery under each option using catch histories only from vessels that staff estimates are eligible for a Pacific cod pot endorsement. The calculations include reallocated quota and do not include <60' vessels, as they are not required to have a cod endorsement to participate. Excluding the <60' vessels from this table affects the values very modestly, as the <60' vessel harvest represents about 1% of the total pot harvest during the 1995 - 2001 time period.

Table 3.40: Distribution of Pacific cod catch within the endorsed[1] pot sectors of the directed BSAI Pacific cod fishery under Alternative 4, Options 1-4

Option	Total Pot Harvest	Pot catcher processors		Pot catcher vessels	
		catch (mt)	% of total pot harvest	catch (mt)	% of total pot harvest
Baseline (95-01)	104,052	22,521	21.6%	81,531	78.4%
1: (95-99)	81,108	18,663	23.0%	62,444	77.0%
2: (96 - 01)	86,899	17,962	20.7%	68,937	79.3%
3: (98 - 01)	43,251	8,175	18.9%	35,076	81.1%
4: (00 - 01)	22,944	3,858	16.8%	19,086	83.2%

Source: ADF&G fishtickets and NMFS Blend data, 1995 - 2001.

[1]Endorsed vessels are those that staff estimates will have the appropriate LLP license and Pacific cod endorsement to participate in the directed BSAI cod fishery with pot gear in the long-term. An estimate of 54 pot catcher vessels and 6 pot catcher processors is used. While 3 pot CPs will also likely qualify for a pot CV endorsement, the catch from these vessels was not attributed to endorsed CVs.

Endorsed pot catcher processors accounted for about 17% - 23% of the total cod harvested by all endorsed pot vessels over the range of options, and pot catcher vessels accounted for about 77% - 83%. This is very similar to the allocations that result from the options under consideration to split the pot cod quota based on the catch histories of all vessels that had been participating in 1995 - 2001 (13% - 24% to pot catcher processors and 76% - 87% to pot catcher vessels).

There is not greater than a 1% difference under any of the options when they are calculated only using endorsed vessels versus all participating vessels, with the exception of Option 4 (2000-2001). Under Option 4, the difference is about 3.6%, that is, endorsed pot catcher processors harvested about 16.8% of the total *endorsed* pot cod harvest during 2000 - 2001, while all participating pot catcher processors only harvested 13.2% of the *total* pot harvest during that time period. Referring back to Table 3.38, the pot catcher vessel portion in 1995 - 1999 was 75.8%, while in 2000 and 2001 it increased to 86.8% (difference of 11%). Relative to endorsed vessels *only*, the pot catcher vessel portion was 77% in 1995 - 1999, while in 2000 and

2001 it only increased to 83.2% (difference of 6.2%). **This indicates that the increase in relative pot cod harvest generated by the pot catcher vessel sector in 2000 and 2001 is at least partially attributable to non-endorsed catcher vessels that will not be eligible to participate in the fishery under Amendment 67.**

3.4.5.3 Revenue Estimates under Options 1-4

Similar to the methods described under Alternatives 2 and 3, estimates of Pacific cod gross revenues can be calculated using the 2003 TAC, the apportionments under each of the four options, and assumed prices. The revenue estimates below are included to provide the reader with a reference point. They are not an accurate representation of future revenues in the cod fishery, as the catch levels, effort, and cod prices are not static in time. They may, however, provide some insights as to the direction, relative distribution, and general magnitude of the gross revenue impacts of the alternatives and options under consideration in the present action. An estimate of the 2001 ex-vessel price ($0.24 per round pound) for vessels using pot gear is used in this section, developed from gross earnings estimates prepared by the CFEC. Estimates of first wholesale value per ton of round cod for 2001 are used in the following section, developed from the 2001 COAR data: $1,184 per mt of round cod for pot catcher processors and $1,258 per mt of round cod delivered shoreside or to motherships by pot catcher vessels. See Appendix A for a detailed discussion of the methodology used to generate these estimates.

Projected (Gross) Ex-vessel Revenues

Table 3.41 shows the projected gross ex-vessel revenues of the pot catcher vessel sector under the baseline and Options 1 - 4 as proposed under Alternative 4, as well as an average ex-vessel revenue per vessel. The

Table 3.41: Projected estimates of ex-vessel BSAI Pacific cod revenue within the pot catcher vessel sector under the alternatives and Options 1- 4, based on the 2003 TAC and 2001 ex-vessel prices

Alt/Option	Pot catcher vessels			
Alternative 2[1]	% of total pot catch	Allocation (% of fixed gear cod TAC)	Catch (mt)	Ex-vessel revenue ($ million)
Baseline (95-01)	78.5%	14.4%	14,024	$7.42
1: (95-99)	75.8%	13.9%	13,537	$7.16
2: (96 - 01)	78.8%	14.4%	14,024	$7.42
3: (98 - 01)	82.0%	15.0%	14,608	$7.73
4: (00 - 01)	86.8%	15.9%	15,485	$8.19
Alternative 3[2]				
Baseline (95-01)	78.5%	14.2%	13,829	$7.32
1: (95-99)	75.8%	13.7%	13,342	$7.06
2: (96 - 01)	78.8%	14.3%	13,926	$7.37
3: (98 - 01)	82.0%	14.8%	14,413	$7.63
4: (00 - 01)	86.8%	15.7%	15,290	$8.09
Alternative 3, Option 1[3]				
Baseline (95-01)	78.5%	14.0%	13,634	$7.21
1: (95-99)	75.8%	13.5%	13,147	$6.96
2: (96 - 01)	78.8%	14.0%	13,634	$7.21
3: (98 - 01)	82.0%	14.6%	14,219	$7.52
4: (00 - 01)	86.8%	15.5%	15,095	$7.99

Note that the 2003 fixed gear P. cod TAC is 97,388 mt. Assumptions: 2001 ex-vessel price (from CFEC gross earnings estimates) of $0.24/lb (round cod) for pot catcher vessels.

[1]Alternative 2 (status quo) would continue to allocate 18.3% of the fixed gear BSAI P. cod TAC to the pot sector.

[2]Alternative 3 (modified status quo) would allocate 18.1% of the fixed gear BSAI P. cod TAC to the pot sector.

[3]Alternative 3, Option 1 would allocate 17.8% of the fixed gear BSAI P. cod TAC to the pot sector.

baseline used for the pot sector under Alternative 4 is the relative catch during 1995 - 2001, since the pot sector allocation has been shared between catcher processors and catcher vessels during that time period. The options for a pot split under Alternative 4 are calculated under the general pot allocations from Alternative 2 (18.3%), Alternative 3 (18.1%), and Alternative 3, Option 1 (17.8%). Thus, because Alternative 2 provides the highest allocation to the pot sector overall, the ex-vessel revenues are also highest resulting from that alternative.

As expected, Option 1 and Option 4 provide the upper and lower estimates of ex-vessel revenues under each of the alternatives, respectively. This is because the pot catcher vessel sector has harvested a larger

proportion of the overall pot harvest in recent years (2000 - 2001, Option 4) compared to 1995 - 1999 (Option 1). (As noted previously, however, this increase is partially attributable to non-endorsed pot catcher vessels.) Under Alternative 2, the pot sector would generate between $7.2 million and $8.2 million in ex-vessel revenues. Under Alternative 3, revenues range from $7.1 million to $8.1 million, and under Alternative 3, Option 1, revenues range from $7.0 million to $8.0 million. Thus, the greatest difference in ex-vessel revenues between any two options is estimated at $1 million. Note that Option 2, in which harvest data from 1996 - 2001 are considered, is very similar to the baseline scenario (1995 - 2001) under Alternative 4.

Projected (Gross) First Wholesale Revenues

The amount paid to the first processors of fish for their product is first wholesale revenue. This section of the analysis uses 2001 production patterns and assumed prices from the 2001 COAR data to project changes in product mix and first wholesale revenues under each alternative and option. Appendix A details the methods used to determine the production mix and price estimates. With the first wholesale price, production by sector, and the product recovery rate, a measure of the first wholesale value per ton of round cod can be estimated. The results show that inshore deliveries generate about $1,258 and pot catcher processors $1,184 per metric ton of round cod. Given the allocation percentage estimates provided in Table 3.38 and an assumed fixed gear allocation of 97,388 mt in 2003, estimates of the impacts of each alternative and option at the first wholesale level can be calculated using the 2001 first wholesale prices provided above.

Table 3.42 provides projected estimates of first wholesale revenues generated by the pot sector in the BSAI Pacific cod fishery under each of the proposed options. The percentages representing the split of the pot harvest among the options do not include reallocated quota. The options for a pot split under Alternative 4 are again calculated under the general pot allocations from Alternative 2 (18.3%), Alternative 3 (18.1%), and Alternative 3, Option 1 (17.8%). Thus, because Alternative 2 provides the highest allocation to the pot sector overall, the total gross revenues resulting from this alternative are also the highest.

As expected, Option 1 and Option 4 provide the upper and lower estimates of first wholesale revenues attributed to each sector under each of the alternatives, respectively. Option 1 provides the upper bound for the pot catcher processors, and Option 4 provides the upper bound for the pot catcher vessels. This is because the pot catcher vessel sector has harvested a larger proportion of the overall pot harvest in recent years (2000 - 2001, Option 4) compared to 1995 - 1999 (Option 1). Under Alternative 2, the pot catcher processors and pot catcher vessels would generate between $2.8 million - $5.1 million and $17.0 million - $19.5 million, respectively. Under Alternative 3, the range is the same for catcher processors and $16.8 million - $19.2 million for catcher vessels. Finally, under Alternative 3, Option 1, revenues range from $2.7 million to $5.0 million for catcher processors and $16.5 million - $19.0 million for catcher vessels. Thus, the greatest difference in gross first wholesale revenues between any two options is estimated at $2.3 million for catcher processors and $2.5 million for catcher vessels. Note that there is very little difference under each of alternatives per se, but there are notable distributional impacts between sectors at the first wholesale level associated with the various options.

Summing first wholesale revenues across the pot sector yields a total of $22.1 million - $22.3 million (Alternative 2); $21.9 million - $22.0 million (Alternative 3); and $21.5 million - $21.6 million (Alternative 3, Option 1). This difference of $0.8 million among all of the alternatives and options is about three percent of total gross revenues under either the baseline or any option. Projected first wholesale revenues among the options differ by about $0.1 million to $0.2 million.

Because the analysis assumes that the first wholesale revenue per ton is constant for each sector, the marginal impact of moving a ton of cod from one sector to another is the difference in the projected revenues per ton. Therefore, moving a ton of cod from the pot catcher vessel sector to the pot catcher processor sector would decrease overall gross revenues by about $74 ($1,258 - $1,184). This value does not provide information on the "net" effects of reallocating between sectors, because of a lack of information on the relative efficiency of either sector. Absent this information, it would be inappropriate to quantitatively estimate the marginal effects, as per net benefits to the nation, from transferring TAC shares between sectors.

Table 3.42: Projected estimates of first wholesale revenue generated by the pot sectors in the BSAI Pacific cod fishery under the alternatives and Options 1- 4

Alt/Option	Shoreside plants receiving catch from pot catcher vessels			Pot catcher processors			Total Pot Sector Revenues
Alternative 2[1]	Allocation (% of fixed gear cod TAC)	Catch (mt)	$ Million	Allocation (% of fixed gear cod TAC)	Catch (mt)	$ Million	
Baseline (95-01)	14.4%	14,024	$17.64	3.9%	3,798	$4.50	$22.14
1: (95-99)	13.9%	13,537	$17.03	4.4%	4,285	$5.07	$22.10
2: (96 - 01)	14.4%	14,024	$17.64	3.9%	3,798	$4.50	$22.14
3: (98 - 01)	15.0%	14,608	$18.38	3.3%	3,214	$3.81	$22.18
4: (00 - 01)	15.9%	15,485	$19.48	2.4%	2,337	$2.77	$22.25
Alternative 3[2]							
Baseline (95-01)	14.2%	13,829	$17.40	3.9%	3,798	$4.50	$21.89
1: (95-99)	13.7%	13,342	$16.78	4.4%	4,285	$5.07	$21.86
2: (96 - 01)	14.3%	13,926	$17.52	3.8%	3,701	$4.38	$21.90
3: (98 - 01)	14.8%	14,413	$18.13	3.3%	3,214	$3.81	$21.94
4: (00 - 01)	15.7%	15,290	$19.23	2.4%	2,337	$2.77	$22.00
Alternative 3, Option 1[3]							
Baseline (95-01)	14.0%	13,634	$17.15	3.8%	3,701	$4.38	$21.53
1: (95-99)	13.5%	13,147	$16.54	4.3%	4,188	$4.96	$21.50
2: (96 - 01)	14.0%	13,634	$17.15	3.8%	3,701	$4.38	$21.53
3: (98 - 01)	14.6%	14,219	$17.89	3.2%	3,116	$3.69	$21.58
4: (00 - 01)	15.5%	15,095	$18.99	2.3%	2,240	$2.65	$21.64

Note that the 2003 fixed gear P. cod TAC is 97,388 mt. Assumptions: First wholesale value of $1,258/mt of round cod for shoreside plants and $1,184/mt of round cod for pot catcher processors.

[1]Alternative 2 (status quo) would continue to allocate 18.3% of the fixed gear BSAI P. cod TAC to the pot sector.

[2]Alternative 3 (modified status quo) would allocate 18.1% of the fixed gear BSAI P. cod TAC to the pot sector.

[3]Alternative 3, Option 1 would allocate 17.8% of the fixed gear BSAI P. cod TAC to the pot sector.

As stated previously, the most notable difference in the distribution to each pot sector is between Option 1 (1995 - 1999) and Option 4 (2000 - 2001). This difference is due to the pot catcher vessel sector harvesting a larger proportion of the total pot harvest since the implementation of the fixed gear allocations under Amendment 64 in 2000. Recall that during 1995 - 1999, pot catcher vessels harvested 75.8% of the total pot harvest excluding rollovers, and during 2000 - 2001 this sector harvested 86.8%. (Note previous discussions that partially attribute this increase to non-endorsed catcher vessel harvests.) Subsequent to approving

Amendment 64, the Council also passed Amendment 67, which requires a Pacific cod species endorsement for fixed gear vessels ≥60' in the BSAI Pacific cod fishery. In addition, upon approval of Amendment 64, the Council initiated an amendment to consider splitting the pot allocation between catcher processors and catcher vessels as was done for the longline sector under Amendment 64. The options proposed mirrored those proposed for the longline sector, using variations of catch histories only from 1995 - 1999.

The Council considered this amendment in June 2002, however, the anticipated implications of Amendment 67 in 2003 and the approaching sunset date of Amendment 64, effectively resulted in a decision to take no action on Amendment 68. While the Council decided not to split the pot allocation at that time, the public was noticed that this action could be proposed again under the current amendment package to continue or modify the overall fixed gear split (NPFMC June 2002 newsletter). This necessarily results in a reconsideration of the pot split several years after it was first proposed for analysis. Thus, in order to prepare a complete amendment package, it was determined that the options for consideration must be expanded to include the most recent data available, which includes 2000 and 2001.

Since the amendment package for Amendment 68 was first initiated in 1999, the pot catcher processor sector has contended that a pot split is necessary similar to that implemented for the longline sector in order to protect its historical harvest share of BSAI Pacific cod. The pot catcher vessel sector has harvested a larger proportion of the overall pot harvest in recent years, although this is likely the result of several interrelated factors. To summarize previous discussions, the crab fisheries have continued to realize very low GHLs and short seasons, allowing additional pot catcher vessels to exert more time and effort in the cod fishery. With the added catcher vessel effort (a high of 113 vessels in 2000), there is both a reduced share of the cod harvest attributed to catcher processors and likely less financial motivation for catcher processors to gear up for the BSAI cod fishery.

In addition, there may have existed some "speculative participation" in the 2000 - 2001 fishery, by vessels that had not historically been fishing cod, as the Pacific cod endorsement was not approved by the Council until April 2000, and not implemented until January 2003. Recall that Table 3.22 in a previous section indicates that while catcher vessels and catcher processors that staff estimates will hold a BSAI Pacific cod endorsement for the long-term, harvested 80% and 76% of the total pot harvest during 1995 - 1999, these same endorsed vessels only harvested 60% and 68% of the total pot harvest during 2000 - 2001, respectively. Thus, while the majority of the effort was still from endorsed vessels, less of the total harvest can be attributed to endorsed vessels in the most recent years.

This discussion is provided to recognize the impacts of basing a pot split on the most recent years (2000 and 2001). While it is the most recent data series available, it may not well reflect the catch history of vessels that created the overall pot allocation under Alternative 2 (18.3% - status quo) or Alternative 3 (18.1%), and is less representative of the endorsed pot vessels' relative harvest. In addition, there may have been some expectation by the public that a reconsideration of the pot split under this amendment package would mirror the same options considered previously (1995 - 1999). Public testimony may provide more information on this issue overall. However, while provided for consideration, none of these issues preclude the Council from selecting options which include 2000 or 2001 catch history.

3.4.5.4 Suboption: reallocations of pot quota

The following suboption is also included for consideration under this amendment:

Suboption: Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is unused by a specified date will be reallocated as follows:

a) Unused quota from either pot sector would be distributed to the other pot sector before it is reallocated over to the other fixed gear sectors **(preferred alternative)**

b) Unused quota from the pot catcher vessel sector would be distributed to the hook-and-line catcher vessel sector before it is reallocated over to the pot catcher processor sector.

These suboptions provide direction on how to reallocate Pacific cod annually allocated to pot vessels that is projected to remain unharvested in a given year. Two options are provided: a) reallocate any unused quota from either pot sector to the other pot sector before distributing it to other fixed gear sectors (hook-and-line), or b) reallocate any unused pot catcher vessel quota to hook-and-line catcher vessels and then, if that is projected to remain unharvested, reallocate to pot catcher processors. Without providing explicit direction on this suboption, it is assumed that NMFS will address the reallocation as is currently done for the other fixed gear cod fisheries. Currently in the BSAI fixed gear cod fishery, any amount of cod annually allocated to hook-and-line catcher vessels or to vessels less than 60 feet LOA that is projected to remain unharvested is reallocated (rolled over) to the hook-and-line catcher/processor fleet. Thus, absent direction on this issue, NMFS would likely reallocate any unharvested pot catcher vessel share to the pot catcher/processors and vice versa (M. Furuness, pers. comm.).

The cod allocations established by Amendment 64 to the BSAI fixed gear sectors have only been in effect since August 2000, thus there are only two full years to provide an example of how the reallocations (rollovers) have been working under Amendment 64. Recall also that 2002 data are considered preliminary. In addition, Amendment 64 specifies that the projected unused trawl and jig catch is allocated 95% to hook-and-line catcher processors and 5% to pot gear (without processing mode distinction).

In both 2000 and 2001, the pot sector harvested its entire quota and also received 5% of the quota rolled over from the trawl and jig sectors in October. In 2000, the pot sector was reallocated an additional 600 mt from the trawl and jig sectors and harvested all of its revised share (17,170 mt). This harvest actually occurred prior to March 10, well before the fixed gear allocations were in place and before NMFS reallocated quota from the jig and trawl sectors. In effect, the pot fleet exceeded its quota before Amendment 64 was implemented in September. In 2001, the first full year the allocations were in place, the pot sector was reallocated 1,330 mt from the trawl and jig sectors and also harvested all of its revised share (17,469 mt).

In 2002, the pot sector was reallocated 360 mt from the jig and trawl sectors but 3,500 mt was subsequently reallocated from the pot sector to the freezer longliners when it appeared that the pot sector could not harvest its entire share before year's end. According to preliminary harvest reports, the pot sector harvested 14,878 mt, or about 87% of its original allocation of 17,175 mt (NMFS Blend data, 2002). The unused quota was reallocated to the hook-and-line catcher processor sector in late November, as this was the only fixed gear sector that could potentially harvest such additional quota so late in the year. These suboptions provide direction on how to address rollovers from the pot sectors under Alternative 4.

In addition, pot (and hook-and-line) catcher vessels <60' currently have a separate allocation of 1.4% of the total hook-and-line and pot gear allocation of the Pacific cod TAC. Any unused quota from this sector is rolled over to the hook-and-line catcher processor sector in September, as established under Amendment 64. Should a <60' allocation continue under this amendment package, an option is provided under Alternative 2 and 3 to continue to reallocate unused quota from the <60' sector to hook-and-line catcher processors. **Thus, the suboptions provided under Alternative 4 only apply to the general pot quota that is proposed to be split between pot catcher vessels and catcher processors, and do not affect the allocation specific to pot catcher vessels <60'.**

Suboption a: unused quota would be reallocated to the pot catcher/processor sector

As stated above, Suboption a would follow the pattern generally used to reallocate quota, and reallocate any amount of cod annually allocated to either pot sector that is projected to remain unharvested to the other pot sector at some point in the second (B) season. Similarly under Amendment 64, any amount of cod annually allocated to hook-and-line catcher vessels or to vessels less than 60 feet LOA that is projected to remain unharvested is reallocated to the hook-and-line catcher processor fleet in September. It is assumed that, because the second (B) pot season is September 1 - December 31, quota would not roll over from one pot sector to another until after September. As part of its ongoing inseason management, NMFS would determine the appropriate time within the second season at which quota would be reallocated should Alternative 4, Suboption a be adopted.

This provision, similar to reallocation provisions in other fisheries, is intended to prevent any quota from remaining unharvested. Because 2003 is the first year in which Amendment 67 has been effective, there are a substantial number of pot catcher vessel licenses with BSAI cod endorsements that are interim status (31 of 79 endorsed licenses). Thus, the final number of cod endorsed pot catcher vessel licenses will not be known until all appeals have been determined, increasing the uncertainty as to whether either pot fleet, as reduced under that action, will have difficulty harvesting its entire allocation under the options in Alternative 4. The pot fleet has been concerned in the past about being able to find cod in the B season, as the fish are less aggregated and more difficult to target with pot gear. However, as discussed previously, the pot fleet took its entire allocation (including reallocated quota) in 2000 and 2001. In addition, because the boats that qualified for a cod endorsement under Amendment 67 are the "core" boats which harvested the great majority of the pot cod catch since 1995,[44] and because reduced crab GHLs are still a concern for many pot vessels who depend, at least in part, on the crab fisheries, the pot fleet may not have a problem harvesting their entire allocation under Alternative 4, Options 1-4. However, in 2002, the pot sector did not harvest its entire initial allocation, and NMFS reallocated 3,500 mt to the hook-and-line catcher processor sector in late November. Thus, should some quota remain unharvested by either pot sector late in the year, this suboption provides for that quota to be reallocated within the pot fleet at some point during the second (B) season.

Suboption b: unused quota would be reallocated to the hook-and-line catcher vessel sector

Suboption b would require that any unused quota from the pot cod catcher vessel sector be first reallocated to the hook-and-line catcher vessel sector. If the hook-and-line catcher vessel sector was projected not to harvest all of its rollover amount, the quota would then be reallocated to pot catcher processors. Note that the hook-and-line catcher vessel sector receives portions of two separate allocations: 0.3% of the total fixed

[44] Staff estimates only 57 pot CVs and 6 pot CPs are qualified for cod endorsements in the long-term. These pot CVs and CPs harvested 74% and 75% of the total pot CV and CP harvest in 1995 - 01, respectively.

gear allocation of Pacific cod TAC is allocated to hook-and-line catcher vessels of any length and 1.4% of the total fixed gear allocation is allocated to hook-and-line and pot vessels <60'. The annual harvest from hook-and-line vessels <60' is attributed to the 0.3% allocation while that fishery is open, then the <60' hook-and-line vessels work off their 1.4% allocation. The remainder of this section assumes that under Suboption b any unused quota from the pot catcher vessel sector would be reallocated to the hook-and-line catcher vessels (they currently have a 0.3% allocation).

The impact of Suboption b depends upon whether or not the hook-and-line catcher vessel fleet is capable of harvesting its entire allocation in a given year. The hook-and-line catcher vessel sector has harvested its entire quota (0.3% of the total hook-and-line and pot gear allocation of Pacific cod TAC) each year since 2000. Upon implementation of Amendment 64 in mid-2000, the hook-and-line catcher vessel directed cod fishery was closed because it had already harvested its 0.3% allocation. This sector did not receive any reallocated quota in 2000. In 2001, the hook-and-line catcher vessel sector also took its entire initial allocation (265 mt) and received an additional 400 mt of reallocated cod quota from the jig and trawl sectors. By years end, this sector had harvested 96% of its total allocation. Similarly, in 2002 this sector harvested its entire initial allocation (282 mt) and received an additional 200 mt of reallocated quota in late September. Preliminary Blend data indicate this sector harvested about 84% of its total revised share of Pacific cod by year's end. Considering the past three years, it appears that the hook-and-line catcher vessel sector can harvest its entire 0.3% allocation established under Amendment 64 and potentially more. The proposed alternatives in this amendment package do not significantly modify the initial allocation to this sector. It also appears that the hook-and-line catcher vessel sector is capable of harvesting additional cod quota late in the season, when reallocations typically occur.

It is necessary to consider that there were several more hook-and-line vessels fishing during recent years than are eligible under Amendment 67 (starting in 2003). For instance, 22 unique hook-and-line catcher vessels ≥60' LOA participated in the BSAI cod fishery during 1995-1999 and are also LLP qualified. Yet only an estimated 9 hook-and-line catcher vessels ≥60 ft will qualify for a cod endorsement and be able to participate in the BSAI cod fishery in the future. (Of these nine endorsed vessels, six are hook-and-line catcher processors that met the criteria for a CV endorsement, but did not meet the CP criteria.) However, because a cod endorsement is not required for catcher vessels <60', an unknown number of smaller vessels will enter or continue to participate in the hook-and-line cod fishery.

Catcher vessels <60' typically account for a substantial portion of the overall hook-and-line catcher vessel harvest. The <60' catch combined with the harvest of the three catcher vessels ≥60' that qualify for a cod endorsement makes up approximately 97% of the overall BSAI Pacific cod hook-and-line harvest in 1995 - 1999 and 83% in 2000- 2001 (see Table 3.22). In addition, because of the limited alternative fisheries available to this fleet and the current concern with the salmon fisheries, we may expect more of these smaller vessels to enter or continue to participate in the Pacific cod fishery. In 2000 and 2001, 32 and 28 hook-and-line catcher vessels <60' participated in this fishery, respectively, which is higher than the seven-year average of 17.

Overall, although the number of ≥60' hook-and-line catcher vessels has decreased due to Amendment 67, the core fleet of vessels which accounted for the vast majority of the harvest since 1995 remains eligible. Suboption b would require NMFS to reallocate unused pot quota to this sector if it appeared it could harvest the additional cod. The second cod hook-and-line season is June 10 - December 31, although there is no halibut bycatch allowance apportioned from June 11 - August 15. (One additional complicating factor for the catcher vessels using hook-and-line gear is the halibut mortality cap they share with the hook-and-line catcher processors. The catcher processors use the majority of the halibut bycatch allowance, but both sectors

must stop fishing when the cap has been reached.) Amendment 64 states that any cod quota projected to remain unused by this sector will be rolled over to the hook-and-line catcher processors in September. Recall that the second cod pot (B) season is September 1 - December 31. Thus, by the time a determination is made that the pot catcher vessel sector would not be able to harvest its entire allocation, it should also be apparent whether the hook-and-line catcher vessel fleet is going to able to take its entire allocation and whether it could harvest any quota reallocated from the pot sector. It is therefore assumed that if quota needs to be reallocated *from* the hook-and-line catcher vessel fleet *to* the hook-and-line catcher processor fleet in September, the hook-and-line catcher vessel fleet would not receive any reallocated quota from other gear sectors. In that case, any unused pot catcher vessel quota would be reallocated directly to the pot catcher processors.

Regardless of the preferred suboption, it may be most effective to view the suboptions as setting an order of preference of recipients of reallocated quota, and allow the Regional Administrator to make the inseason determination regarding which sector is capable of harvesting the quota and subsequently allocate the quota to that sector. One of the problems for the fleets in general is intermittent starting and stopping (i.e., staging and lay-up costs), and a fleet that is not based in Alaska may not be financially able to return after the season has closed to fish a small amount of reallocated quota. (Five of the six pot catcher processors that are projected to qualify for a cod endorsement are based outside of Alaska.) For instance, if the pot catcher processors took their allocation in early October and there was a substantial pot catcher vessel fleet fishing crab with the intent to fish cod after the crab season ends, many pot catcher processors may choose to return home. If at that point, the catcher vessel sector effort lessens and there is still a small amount of its Pacific cod share remaining, it is unlikely, given the associated economic, operational, and logistical costs, that the pot catcher processors would return to fish a small amount of cod (Andy Smoker, Lewis Queirolo, pers. comm.).

Thus, it may be worthwhile to retain some flexibility regarding reallocated quota and allow the Regional Administrator to make the determination, with the order of preference as determined by the Council under the suboptions. Note also that the more complex and the greater the number of gear components involved, the more unwieldy the reallocations are to implement in-season. Essentially, Suboption a requires that any unused quota be reallocated within the pot sector before reallocating to the hook-and-line sector. Suboption b gives the hook-and-line catcher vessel fleet the first opportunity to harvest quota reallocated from the pot catcher vessel sector if they are capable of doing so. No action on these suboptions would defer the decision to the Regional Administrator. None of the suboptions appear to increase the risk that any of the pot gear share of Pacific cod TAC will go unharvested.

3.5 Inseason Management Issues

Groundfish TACs, bycatch, and PSC limits are managed inseason by the NMFS Alaska Regional Office. Fisheries are closed when the fishery nears its TAC, or when seasonal apportionments of PSC are taken; thus, there are dozens of openings and closures to monitor. Within the fixed gear sector, halibut PSC is split out into the Pacific cod fishery and all others (such as turbot and rockfish). The PSC is seasonally apportioned within the Pacific cod fishery to allow for harvest of the seasonal apportionment of TAC (Table 3.43). In 2003, the TAC apportionments for the hook-and-line catcher processor seasons were 46,747 mt (Jan. 1 - June 10) and 31,164 mt (June 11 - Dec. 31). The hook-and-line catcher vessels were apportioned 175 mt (Jan. 1 - June 10) and 117 mt (June 11 - Dec. 31). While each hook-and-line sector receives a separate allocation under Amendment 64, they are both subject to a common halibut mortality cap. The catcher processors typically use the majority of the halibut bycatch allowance, but both sectors must stop fishing when the cap has been reached. This amendment does not propose to change the management of PSC.

Table 3.43: Pre-season apportionments of Pacific cod and halibut PSC mortality for Bering Sea and Aleutian Islands groundfish fixed gear fisheries, 2003.

Fisheries	Halibut mortality (mt)	P.cod TAC hook-and-line CPs	CVs
Pacific cod (longline)			
Jan 1 - June 10	320	46,747	175
June 10 - Aug. 15	0		
Aug. 15 - Dec 31	455	31,164	117
Other longline fisheries			
May 1 - Dec. 31	58		
Groundfish pot &jig	exempt		
Longline sablefish	exempt		
Total	**833 mt**		

NMFS has been managing the four distinct fixed gear allocations established under Amendment 64 since mid-2000, thus selection of Alternative 2 or 3, in which the allocations are continued or modified, does not pose any new monitoring efforts in that respect. A further allocation of the pot gear share of the Pacific cod TAC between pot catcher processors and pot catcher vessels under Alternative 4 will require monitoring of two distinct pot quotas and the seasonal apportionments within each. The BSAI pot cod quota is currently apportioned 60% in the A season (Jan. 1 - June 10) and 40% in the B season (Sept. 1 - Dec. 31). Similar to Amendment 64, the proposed action in this amendment deducts Pacific cod bycatch in other fixed gear target groundfish fisheries off the top of the fixed gear Pacific cod apportionment, and the bycatch is not further subdivided among the pot and longline sectors. Because pot gear has been exempt from PSC limits in recent years, no additional inseason actions would be required for PSC closures as a result of any of the alternatives.

In addition to the fixed gear allocations proposed in Alternatives 2 and 3, and the pot split considered under Alternative 4, there is an option proposed to apportion the 2% jig allocation on a quarterly or trimester basis (Option 3, Suboptions a - e). This option may be selected under Alternative 2 or 3, with the intent to reallocate any unused quota to the <60' hook-and-line and pot sector at the end of each season. This option would represent an additional monitoring task for inseason managers, as it would require opening and closing up to four seasonal jig apportionments, while only two apportionments are currently in place. NMFS managers have asserted that while possible, it is difficult to monitor small quotas on a real-time basis and each action to reallocate unused quota represents staff time and administrative efforts.

While none of the suboptions to create jig seasons are significantly more complex than any other, Suboption (e) proposes determining the jig allocation during the annual TAC setting process in December. A modification of Suboption (e) would provide a regulatory framework that would allocate *up to 2%* of the TAC to the jig fishery during the TAC setting process, based on criteria in regulations. If the Council and NMFS determined that the jig fishery will not likely harvest its entire TAC in the upcoming year, a portion of the allocation would be rolled into the <60' hook-and-line and pot catcher vessel allocation for the start of the fishing year on January 1. This option would continue to support development of a jig gear fishery for BSAI Pacific cod, while minimizing the number of reallocations necessary to prevent leaving the TAC unharvested at the end of the fishing year. The difference between this modification and Suboption (e) as presented originally is that the reallocation would happen in December, prior to the start of the fishing year, as opposed to later in the year after the first jig season is near completion.

The primary benefit of providing a larger allocation upfront to the small boats using hook-and-line or pot gear is that it would allow the participants to better plan their fishing activities for the year and lessen the need for several reallocation processes, thus saving time and reducing the administrative workload of NMFS' inseason managers. A related potential impact is that the hook-and-line and pot catcher vessels <60' may be able to harvest more of the reallocated jig quota under this scenario as they are better able to plan their season, resulting in less quota being subsequently reallocated to the hook-and-line catcher processor fleet after September 15.

Overall, some additional inseason monitoring may be required under this amendment, depending upon the preferred alternative selected. New monitoring would be associated with Alternative 4, in which NMFS would track a separate pot catcher processor and pot catcher vessel quota, similar to how it is done for the longline sectors. Additional monitoring would also be necessary under Alternative 2 or 3, Option 3, in which up to four seasonal apportionments are proposed for the Pacific cod jig fishery, as opposed to the current two. By contrast, much reduced administrative and managerial tasks would be necessary under Alternative 1, in which the fixed gear allocations would be allowed to expire. Under that scenario, NMFS would need only monitor one allocation for all of the fixed gear sectors in the directed BSAI Pacific cod fishery.

Catch accounting

Currently NMFS accounts for each sector's allocation based on the gear type used and the mode of delivery.[45] The assignment of catch to each allocation is dependent on how it is reported. The majority of the endorsed longline catcher processors in the BSAI Pacific cod fishery are over 125 feet LOA, and thus are 100% observed. Pot vessels of all lengths over 60 feet LOA are 30% observed. Observers distinguish between catcher processor and catcher vessel activity for each set. Catch accounting for 100% observed vessels utilizes observer data. Catch accounting for 30% observed vessels (including all observed pot vessels) utilizes vessel weekly production reports for activity as a catcher processor, and reports from the shoreside or floating processor for activity as a catcher vessel.

In this sense, Amendment 64 created quotas for fleets of vessels based on their activity: if a vessel is acting as a catcher processor, that catch is deducted from the catcher processor allocation; if a vessel acts as a catcher vessel, that catch is deducted from the catcher vessel allocation. Currently, of course, the pot catcher processors and pot catcher vessels share an allocation of 18.3% of the BSAI fixed gear cod TAC, thus, the situation described above only applies to the longline sector at this time.

[45] NMFS deducts catch reported by catcher processors on WPRs from the catcher processor sector's allotment. Catch reported on fishtickets is deducted from the catcher vessel allotment.

With the implementation of Amendment 67, however, the Council clearly identified criteria by which to define an eligible fleet of vessels in each fixed gear cod sector (hook-and-line CPs, hook-and-line CVs, pot CPs, and pot CVs). This created a group of individual qualifying vessels, and while their eligibility is based on harvests as a 'typical' activity type, their endorsement does not necessarily denote the mode in which they may operate. For instance, while a pot vessel endorsed only as a CV for BSAI Pacific cod cannot act as a CP, a vessel endorsed as a CP can act as either a CP or a CV (i.e., NMFS cannot force a catcher processor to process its catch). Under the current system, therefore, a vessel endorsed as a CP could operate as a CV and potentially catch a substantial portion of the CV allocation, while also continuing to harvest off the CP allocation. This is an unlikely scenario, as most catcher processors want to operate as such for economic reasons, and may not be well equipped to hold and transport round fish. The opportunity exists, however, with the implementation of both fixed gear allocations and fixed gear cod endorsements.

In sum, the catch accounting system is not cognizant of LLP permits or allocation scenarios. It currently attributes catch to an allocation depending on the vessel's mode of activity. However, if the Council instead determines that the intent of Amendment 67 in combination with the fixed gear allocations proposed in this amendment is to determine a specific fleet of vessels based on their historical activity–and not necessarily how they are operating at any one point in time in the future–the catch accounting system may need to be revised to reflect that intent. In practice, the harvest specification process could denote a specific allocation to each predetermined fleet of vessels: if a vessel is endorsed for BSAI Pacific cod as a hook-and-line catcher processor, any catch attributed to that vessel, whether delivered to an onshore processor or processed on the vessel itself, would come off the hook-and-line catcher processor allocation. This would tie each distinct sector under Amendment 67 qualifications to one specific fixed gear allocation.

3.6 Crab Rationalization and the Buyback Program

The NPFMC is in the process of developing a voluntary cooperative management structure for the BSAI crab fisheries. Rationalizing the crab fishery could result in qualified crab vessels being able to harvest cod at times that would have traditionally conflicted with crab fisheries. It may also increase the number of vessels that do not harvest crab, through consolidation or not receiving an initial allocation, that could as a result, increase effort in the Pacific cod fishery.

A total of 82 vessels appear to qualify for an allocation of quota shares in at least one BSAI crab fishery, based on the Council's preferred alternative, and also hold a fixed gear Pacific cod endorsement in the BSAI as of February 2003 (this includes both interim and transferable licenses). Of those vessels six hold a pot catcher/processor endorsement, 71 hold a pot catcher vessel endorsement, seven hold a hook and line CP endorsement, and five hold a hook and line CV endorsement. Given that the total number of endorsements is greater than the number of vessels, it is obvious that some vessels hold more than one endorsement. A complete list of the endorsement combinations is provided in Table 3.44 below for vessels that are qualified to fish Pacific cod relative to those that are projected to qualify to fish both Pacific cod and crab.

Table 3.44: Number of vessels with crab and/or BSAI Pacific cod endorsements

Endorsements Held	Number of Vessels Endorsed for Both Crab and Pcod	Number of Vessels Endorsed for Pcod[1]	Number of Vessels only Endorsed for Pcod
CV HAL	1	6	5
CV POT	67	72	5
CV POT, CV HAL	2	3	1
CP HAL	5	40	35
CP HAL, CV HAL	0	1	1
CP HAL, CV POT	1	2	1
CP POT	4	5	1
CP POT, CV POT, CV HAL	1	1	0
CP POT, CP HAL	1	3	2
CP POT, CP HAL, CV HAL	0	1	1
CP POT, CP POT, CV POT	0	1	1
Total	82	135	53

[1]The 135 fixed gear vessels endorsed for BSAI Pacific cod includes vessels with both interim (45) and transferable licenses (90) issued by NMFS as of February 2003. Based on a review of harvest data and appeals status, staff estimates that closer to 112 cod endorsements will be issued after appeals are completed (for 112 or fewer vessels). However, the data provided in the table relates the current status of eligible fixed gear vessels endorsed for BSAI Pacific cod.

Table 3.44 shows that vessels qualifying for a pot gear Pacific cod endorsement are more likely to qualify for the crab rationalization program than are longline vessels. This result is logical, since pots are the gear type used to harvest crab. It also means that the spillover impacts of crab rationalization may not be severe, because, in general, the pot vessels qualify to fish both fisheries and the longline vessels are qualified to fish Pacific cod only. Complaints that may arise would likely come from the persons that only hold a Pacific cod endorsement.

It should also be noted that the Council reviewed spillover issues under the Crab Rationalization amendment package. At that time it was determined that no additional spillover protections were needed for the BSAI fixed gear Pacific cod fishery. The Council reserves the right to implement additional protections if it is demonstrated that a group of vessels has been harmed beyond what was anticipated.

A $100 million buyback program is being developed as part of the overall crab rationalization program. The program would essentially purchase the licenses, fishing histories, and any other fishing rights associated with the vessel that is bought out of the fishery. That means any vessel's history that is purchased under the buyback program would include the history and rights to fish Pacific cod in the BSAI. Those groundfish licenses that were generated from that history and their associated Pacific cod endorsements would then be permanently removed from the fishery.

Approval of the final buyback program requires a referendum on the results of the bids accepted by NMFS. Two-thirds of the remaining industry must vote in the affirmative for the program to be approved.

The bids that are proposed to be accepted by NMFS are those that would remove the most crab history[46] for the least amount of money. Since Pacific cod histories are not considered as part of the buyback calculation (they are assumed to have no value in the calculation), vessels with Pacific cod histories would need to consider that value in their buyback bid if they wish to be compensated for that history. This may result in vessels that are primarily reliant on crab being bought back, since they would not need to include the value of other fisheries histories in their bid.

Vessels that are bought back will likely come from the pot sector. Pots are the gear used to harvest crab and it is often those same vessels that harvest Pacific cod using pot gear. Therefore, if the number of vessels that are eligible to harvest Pacific cod is reduced as a result of the buyback program, the pot sector would likely receive the most benefit.

Since the program has not been finalized and approved by the affected members of the crab fishing industry, the overall impact of the buyback program on the BSAI Pacific cod fishery is not known. It could, however, result in a reduction in the number of vessels that are allowed to participate in future fixed gear BSAI Pacific cod fisheries. The extent of the reduction in licensed vessels cannot be quantified or even estimated until the buyback program is finalized.

3.7 Cooperative Formation

A long-term allocation of the Pacific cod TAC among fixed gear vessels and the recent addition of cod endorsements to groundfish licenses may provide an opportunity for the members of some fixed gear sectors to form cooperatives in the BSAI Pacific cod fishery. The fixed gear sectors that could form cooperatives are those groups that receive a Pacific cod allocation under Amendment 77.

Owners of groundfish licenses that may be used on freezer longline vessels could have the opportunity to form cooperatives. They are a relatively small group[47] of vessel owners that are, in general, highly dependent on the Pacific cod fishery. Cooperatives could assist the sector in better organizing their prosecution of the BSAI Pacific cod fishery. Improved organization has the potential to increase efficiency in the fishery, with accompanying improvements in product quality, catch utilization, and market value, yielding benefits to the consumer in the form of higher quality and expanded supply of the range of products delivered to domestic and international markets. Through cooperative management, efficiencies of scale (i.e., fitting the effort and capacity to the size of the group's allocated share) hold the promise of increased aggregate net revenues accruing to the cooperative members. Society benefits when scarce productive resources are not "wasted"

[46] Crab history is determined by counting each vessel's documented crab harvests during the most recent 5 years of a 10 year period starting on January 1, 1990. Crab species excluded from the calculation are triangular tanner crab, grooved tanner crab, other commercially insignificant species of crab, discarded crab, personal use crab, etc. A complete list can be found in the proposed rule for the buyback program.

[47] As of 4/14/2003, the RAM LLP data base indicated that a total of 48 permanent and interim hook-and-line catcher processor endorsements are in the fishery. Thirty-five of the licenses are permanent. It is not known how many of the 13 interim licenses will become permanent after the appeals process is completed. Note that staff estimates that only 40 hook-and-line catcher processors will qualify for a hook-and-line CP cod endorsement in the long-term.

through unnecessary and unproductive competition, as is characteristic of a traditional "race-for-fish" management regime.

Cooperatives in the pot sector could encompass the entire pot sector (for vessels ≥60'), or separate cooperatives could be formed by the ≥60' catcher vessel and catcher processor fleets.[48] It is assumed that cooperatives are more likely to form if pot catcher vessels and catcher processors are given their own allocations. This assumption is based on the theory that cooperatives are more likely to form in fisheries where the participants' activities are more homogeneous and there are fewer participants.[49] However, if separate allocations are not implemented as part of this amendment package, the pot sector would still have the opportunity to form cooperatives.

In the freezer longline, ≥60' longline catcher vessel, and ≥60' pot sectors, limitations on the number of participants in the BSAI fixed gear Pacific cod fishery have been implemented through the Groundfish License Limitation Program, the gear endorsement amendment to the License Limitation Program, and the Pacific cod endorsement amendment to the License Limitation Program. Exemptions to the License Limitation Program for vessels ≤32' that fish in the BSAI and exemptions to the BSAI Pacific cod endorsement requirement for vessels <60' allows for new entrants to participate in the <60' pot and longline catcher vessel sector. Therefore, cooperative formation is least likely in the <60' pot and longline vessel sector because no strict controls on who could participate in the harvest of Pacific cod exist.

Fisheries With Cooperatives The BSAI pollock fishery and North Pacific scallop fishery currently employ cooperative structures to manage individual harvests. Both of these programs are considered successful by the cooperative participants, as they allow participants to better plan their fishing activities. Cooperatives in the BSAI pollock fishery were formed through of an act of Congress and regulatory amendments. Implementation of the program required several changes to the FMP as well as annual review of the program through mandatory cooperative reports.[50]

Scallop cooperatives were formed by participants in that fishery after the Council implemented a relatively strict license limitation program that identified all eligible participants in that fishery. Cooperatives in that fishery were formed outside of the Council process after fishing licenses were issued, because the entire fleet agreed to operate under the cooperative system they developed. Without additional action by the Council, cooperatives in the fixed gear Pacific cod fishery would need to form with limited Federal oversight, like they did in the scallop fishery.

Fixed Gear Cooperative Formation The next sections of this document provide information on the potential formation of cooperatives in the fixed gear Pacific cod fisheries. No conclusions can be drawn regarding whether cooperatives will actually form in the future. Too many unknowns exist for an analyst to develop a sound conclusion on the future of cooperatives. Instead, a discussion of the factors that will encourage or discourage their formation is presented.

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[48] One of the issues that the Council considered as part of this amendment package is whether to create separate allocations in the pot sector. Apportioning the pot share of the BSAI Pacific cod TAC between pot catcher processors and pot catcher vessels may allow for a better opportunity to form cooperatives in the pot sectors.

[49] It is also assumed that fewer participants are easier and more likely to organize into cooperatives than larger groups.

[50] The annual cooperative reports are available through the NPFMC office. Each cooperative that receives an allocation of pollock is required to submit a summary of the year's activities.

Hook-and-line Catcher Processors (Freezer Longline Vessels) - Freezer longline vessels are typically very reliant on the BSAI Pacific cod fishery (see Chapter 4.0 of this amendment package). The importance of the Pacific cod fishery to the health of the businesses that participate in the freezer longline cod fishery may help motivate the formation of cooperatives.
A total of 48 freezer longline endorsements are currently issued on groundfish licenses that will allow vessels to target Pacific cod in the BSAI. Because some entities own more than one vessel (and the associated groundfish license), there are fewer entities holding those licenses than there are licenses to fish. Therefore, reaching agreement to form a cooperative will likely require slightly fewer[51] entities agreeing than there are vessels that can currently fish. Those owners would have the opportunity to develop contracts that define the terms of cooperative membership of each participating entity, if they wish to participate in the cooperatives.

Cooperatives will form and be successful only if all individuals eligible to harvest Pacific cod from the freezer longline TAC abide by the cooperative contracts. All members of the freezer longline sector will need to join the cooperative to ensure that the terms of the contracts are met. Not all members of the inshore BSAI pollock fleet joined cooperatives the first year they were created for a variety of reasons.[52] However, cooperatives were still able to form and function successfully because NMFS was authorized to allocate pollock to an individual cooperative based on the catch history of its members. Vessel owners that elected not to join had their history allocated to the open-access portion of the BSAI inshore pollock fishery. Any pollock harvested from the directed open-access fishery was deducted from that pooled TAC allotment. Once NMFS determined a date when the open access fishery allotment would be harvested, NMFS would issue a closure order to all vessels operating in the open access inshore pollock fishery. Vessels that are members of a cooperative would be allowed to continue fishing until the cooperative's pollock allotment is taken.

NMFS does not have a mechanism to allocate catch history to individual cooperatives and the open access fishery in the fixed gear Pacific cod fisheries. Therefore, either all vessel owners would need to voluntarily join a cooperative and abide by its bylaws, or additional regulations would need to be promulgated to provide NMFS with the authority and structure for allocating Pacific cod to specific cooperatives in addition to the open access.

Interim licenses that are currently outstanding in the freezer longline sector may impede the formation of cooperatives. Recall that there are 13 interim licenses as of the writing of this document. There are at least two reasons they could potentially impact cooperative formation. First, it expands the number of persons that must be included in the cooperative. Second, persons that feel they may lose their appeal may not be as willing to form cooperatives as people that have a permanent long-term stake in the fishery.

It is anticipated that members of the freezer longline cod fleet would form cooperatives, as they have seen the advantages derived from cooperatives in the pollock fishery. Staff is unaware of any formal

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[51] The LLP data base indicates that there are 44 license owners. Some of those license holders are companies. It is possible that someone could own more than one company and therefore the actual number of owners in the fishery may be less than 44.

[52] The primary motivating factor was that some people felt they would fare better in the open access fishery. Most of these people would have access to relatively small quotas in a cooperative and felt they could harvest more in the open access. Their assumption was buoyed by the fact that the history of some vessels that did not meet the qualification criteria was included in the open access allocation. After the first year, the open access allocation structure was changed so that catch history did not go into the open access fishery. That encouraged many more vessels to join cooperatives the following year.

arrangements that have been made to implement cooperatives in the freezer longline sector. However, industry discussions are currently underway that could potentially lead to cooperative formation in the catcher processor fleets in the BSAI (and perhaps all sectors).

Pot Vessels ≥60'. Pot catcher vessels and catcher/processors ≥60' currently share an allocation of 18.3% of the fixed gear Pacific cod allocation in the BSAI. Alternative 2 would continue that allocation under Amendment 77. However, Alternative 4, in this amendment package, provides four options to apportion the pot allocation between the catcher vessel and catcher processor sectors. Cooperatives could form regardless of whether a separate allocation is made to the catcher vessels and catcher processors. A discussion of the cooperative formation in the pot sector under each scenario and the impacts of the crab voluntary cooperatives is discussed next.

The options under Alternative 4 (as selected by the Council in its preferred alternative) may aid one or both sectors in cooperative formation. Catcher processors would likely benefit the most from a split of the TAC, because the harvest of the pot catcher processors has also declined relative to the catcher vessel sector since the fixed gear cod allocation was implemented in 2000. Also, a maximum[53] of 11 pot catcher processor vessels are currently licensed to fish Pacific cod. The catcher vessel sector, on the other hand, currently has 82 vessels endorsed for the BSAI Pacific cod fishery. Forty-nine of the licenses are permanent and 33 are interim licenses. (Note that while this is the number of endorsed licenses issued at the time of the writing of this document, staff estimates that 57 pot catcher vessels and 6 pot catcher processors will likely hold a BSAI Pacific cod endorsement in the long-term.) Given the number of participants in the two groups, it would likely be easier to reach consensus on cooperative formation among the small number of catcher processors, than among the larger number of catcher vessels.

Cooperative formation in the pot sector will likely be influenced by the voluntary cooperative program currently being developed for the BSAI crab fisheries. Under that program, catcher vessels will be allocated catcher vessel quota[54] that must be delivered to an eligible processor. Catcher processors will be allocated catcher processor quota for harvests made when they acted as a catcher processor and catcher vessel quota when they acted as a catcher vessel. After being allocated quota for each species of crab[55] they fished during the qualifying period, the quota share holders are given the option of joining a cooperative to fish their crab allocation. Quota holders in the crab fishery that join cooperatives, and that are licensed participants in the Pacific cod fishery, may be able to extend those contractual relationships into cod. Under that scenario, cooperative formation in the cod fishery may be aided because a structure for cooperative formation and working relationships already exist. If crab quota holders choose to act independently in the crab fishery, it may be more difficult for them to reach agreements to form cooperatives into the cod fixed gear fishery. Recall from the discussion in the freezer longline section that for cooperatives to function properly everyone qualified to fish Pacific cod from the pot allocation would need to join the cooperative. Without complete

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[53] Eleven vessels (as of 4/14/03) currently hold a BSAI groundfish license with a pot CP endorsement. Five of those are permanent and six are interim. It is not known if the interim licenses are under appeal because of the cod endorsement or for another reason. Note that staff estimates only 6 vessels will hold a pot CP endorsement in the long-term.

[54] Ninety percent of the catcher vessel quota must be delivered to processors that hold processing quota. The remaining 10 percent of the quota may be delivered to any processor.

[55] The species included in the crab rationalization program are Bristol Bay red king crab, WAI (Adak) golden king crab - West of 174° W, EAI (Dutch Harbor), golden king crab - East of 174° W, WAI (Adak) red king crab - West of 179° W, Pribilof blue and red king crab, St. Matthew blue king crab, Bering Sea *C. opilio* (snow crab), Bering Sea *C. bairdi* (Tanner crab).

cooperation, cooperative bylaws would be difficult (likely impossible) to maintain due to the activities of persons not bound by those agreements.

Less than 60' Longline and Pot Vessels. Longline and pot catcher vessels <60' share an allocation of 1.4% of the TAC. These vessels are exempt from the cod endorsements requirements for the BSAI Pacific cod fishery so all of the vessels <60' that hold a general license with a fixed gear endorsement for the Bering Sea and/or Aleutian Islands can participate. The current LLP data base indicates that 125 vessels are licensed to fish in either the Bering Sea or Aleutian Islands. This does not include the vessels <32' LOA that are not licensed, but are exempt from the general LLP requirements. Given the diverse nature of the fleet and the unconstrained entry into the fishery, it is unlikely that this sector will be able to form cooperatives.

Longline Catcher Vessels ≥ 60'. Cooperative formation in the ≥60' longline catcher vessel sector will likely depend on whether participants anticipate the benefits derived from setting up and maintaining a formal cooperative working relationship outweigh the costs. Given that currently 12 vessels are licensed to participate in this sector and the sector is allocated 0.3% of the TAC, it suggests a smaller relative share (e.g., less gross revenue) per vessel to cover cooperative costs, than other sectors may have. Whether the costs of cooperative formation and management will be too great to entice members of this fleet to join cooperatives is unknown.

Halibut PSCs Role in Cooperative Formation. Halibut prohibited species catch (PSC) has limited the amount of Pacific cod harvested by hook-and-line vessels in some years. When considering cooperatives it may be important to take into account the role of halibut PSC allotments in their operation. Currently, halibut PSC is allocated annually among three different time periods[56] to the non-trawl component of the Pacific cod fishery. Pacific cod harvested using pot and jig gear are exempt from the halibut PSC limits and their halibut catch is not counted against the sector cap. Therefore, both longline catcher vessels and freezer longliners share the halibut PSC cap for Pacific cod and both would be issued a closure notice once the mortality cap is reached. A cooperative system may need to be developed that divides the halibut PSC among all longline vessels. This would likely require an inter-cooperative agreement, if both the catcher vessels and freezer longliners form cooperatives, that stipulates how much halibut each group may harvest. If cooperatives are not formed in both sectors, it may impact the effectiveness of the cooperatives that do form, since individuals may not be able to harvest their entire cod apportionment before the halibut PSC limit is reached. This problem will be less severe for the freezer longline sector, since longline catcher vessels ≥60' currently are only allocated 0.3% of the Pacific cod TAC and the <60' longline catcher vessels share an allocation of 1.4% with the <60' pot fleet. Given the relatively small allocation of Pacific cod, these sectors will likely take a relatively small portion of the halibut PSC.[57] However, without a way to ensure that halibut PSC will be available at the end of the season for those sectors that do form cooperatives, potentially significant economic risk would be introduced into fishery cooperative planning and management. The associated inefficiencies would tend to increase costs and reduce the potential benefits of establishing and maintaining cooperatives.

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[56] In 2003, the halibut PSC mortality allotments in the BSAI non-trawl Pacific cod fishery are January 1 through June 10 (320 mt), June 10 through August 15 (0 mt), and August 15 through December 31 (455 mt). Any PSC allotment not used in the January 1 through June 10 period will be available for use starting on August 15.

[57] Because vessels <60' are not observed it is likely that the standard halibut mortality rate would be assigned to their Pacific cod harvests.

3.8 Net Benefit Implications

Cost data for the proposed action fishery's harvesting and processing sectors are not currently available. For this reason, one cannot complete a quantitative net benefit examination of the preferred alternative, nor derive numerically based comparative net benefit conclusions about the several competing alternatives and sub-options. On the basis of the information which has been compiled and presented above, it appears reasonable to assert than the benefits to society, accruing from adoption of the preferred alternative, (e.g., improved management and conservation of the cod resource, increased harvesting and processing efficiency, improved catch utilization, improved product quality, increased supply of products to domestic and world markets) can be expected to exceed attributable costs, yielding a "net benefit to the Nation", as required under Executive Order 12866. As the foregoing analysis demonstrates, there may be distributional impacts among the various harvesting and processing sectors of the industry, attributable to the proposed action, although these properly do not enter into a "net benefit analysis". Nonetheless, even the distributional impacts, identified and evaluated in the course of this analysis, when taken into account, suggest that, in general, results will be substantially equivalent to the current situation observed in these fisheries.

3.9 E.O. 12866 Conclusion

E. O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant." A "significant regulatory action" is one that is likely to:

(a) Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;
(b) Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
(c) Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
(d) Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

Based on the analysis and the above cited criteria, none of the alternatives appear to have the potential to constitute a "significant" action under the E.O. 12866.

3.10 Summary of the Council's Preferred Alternative

At its June 2003 meeting, the Council approved a preferred alternative to continue separate apportionments of the BSAI Pacific cod TAC among the fixed gear sectors (hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, pot catcher vessels, and pot/hook-and-line vessels <60' in length). This action continues the allocations approved by the Council and implemented under BSAI Amendment 64 in September 2000, with a further split of the pot sector's apportionment between pot catcher vessels and pot catcher processors. This action is necessary to continue the fixed gear allocations, as the original amendment implementing those allocations will expire on December 31, 2003. The intent is to respond to concerns that the stability of this fully utilized fishery is threatened by increased competition, driven in part by the recent increases in the market value of cod products and the general reliance of the fixed gear fleets on this fishery. Absent a gear split, there is no mechanism to prevent one sector from increasing its effort in the fishery and eroding another sector's relative historical share. The objective of the proposed FMP

amendment is to maintain stability in the BSAI fixed gear Pacific cod fishery until comprehensive rationalization is complete. This section outlines each component of the preferred alternative with regard to the specific provisions and related issues that were identified as decision points in Section 3.4.

This section focuses on the alternatives, options, and suboptions adopted by the Council which make up the preferred alternative to establish separate allocations in the BSAI Pacific cod fixed gear fishery. It is the combination of these elements which determine the whole of the action. Overall, the preferred alternative mirror the status quo under BSAI Amendment 64, however, two primary changes were approved: (1) separate allocations to pot catcher processors and pot catcher vessels; and (2) the reapportionment of the BSAI Pacific cod jig allocation by trimester, with a provision to reallocate any quota that is projected to remain unused to the <60' hook-and-line/pot catcher vessel sector.

The following summarizes the Council's preferred alternative on BSAI Amendment 77:

The intent is for this action to be implemented beginning January 1, 2004.

Overall fixed gear allocations (status quo):
The Council approved continuing the current (under BSAI Amendment 64) BSAI Pacific cod allocations among the fixed gear sectors as follows:
80% hook-and-line catcher processors
0.3% hook-and-line catcher vessels
18.3% pot vessels
1.4% to <60' pot/hook-and-line catcher vessels

Pot split:
The Council also apportioned the pot share (18.3%) of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories from 1998 - 2001:
3.3% pot catcher processors
15.0% pot catcher vessels

Rollover provisions:
Any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet.

Any quota reallocated from the trawl sector shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors.

Apportion the 2% BSAI Pacific cod jig allocation on a trimester basis as follows:
40% (Jan. - April)
20% (May - August)
40% (Sept. - Dec.)
Any jig gear quota that is projected to remain unused will be reallocated to the catcher vessels <60' using hook-and-line or pot gear at the end of each jig season.

Any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused shall be reallocated to the other pot sector before it is reallocated to the other fixed gear sectors.

There is no sunset provision associated with this action.

Overall fixed gear allocations

The Council selected the same apportionments (Alternative 2, status quo) among the fixed gear sectors as were established under BSAI Amendment 64:

- **80% hook-and-line catcher processors**
- **0.3% hook-and-line catcher vessels**
- **18.3% pot vessels**
- **1.4% to <60' pot/hook-and-line catcher vessels**

These allocations are based roughly on the average Pacific cod harvest by sector during 1995 - 1998 (excluding quota reallocated from other gear sectors), with an additional allocation of 1.4% to <60' catcher vessels using pot or hook-and-line gear. As discussed in Section 3.4.3, these same allocations would result if 1999 catch histories were also included. Thus, the Council's action essentially establishes the relative harvest distribution among fixed gear sectors that was in place during 1995 - 1999 and was continued during 2000 - 2003 under Amendment 64. Maintaining the allocations that have been in place for these sectors during the past nine years was determined to best meet the objective in the problem statement to "maintain stability in the BSAI fixed fear Pacific cod fishery." Of the considerable public testimony provided at both the April and June Council meetings, representatives from all fixed gear sectors supported the status quo allocations. No testimony was received which did not support the status quo allocations.

The status quo alternative also includes the following methods for allocating BSAI Pacific cod: Bycatch of Pacific cod in other fixed gear fisheries will continue to be subtracted from the overall fixed gear allocation before allocations for the directed fisheries are set. Harvests of pot and/or hook-and-line catcher vessels <60' LOA only accrue against the 1.4% allocation when the Pacific cod fishery for all catcher vessels using pot gear or hook-and-line gear, respectively, are closed. The intent is for this action to be implemented January 1, 2004, upon expiration of BSAI Amendment 64. The Council decided to continue the 1.4% allocation to <60' catcher vessels in the preferred alternative, reaffirming the policy objective to provide the small boat fleet with an allocation several times greater than it harvested in the past (0.3% on average during 1995 - 1999). Since the separate allocation of Pacific cod has been available to this fleet, the <60' catcher vessels have gradually increased their percentage of the total BSAI Pacific cod fixed gear catch. In 2002 and 2003, this sector harvested its entire 1.4% allocation, which equates to about 1,300 mt in each of the past two years. Because the <60' fleet typically starts fishing later in the year than the larger vessels, a separate allocation has allowed this fleet the opportunity to increase its relative percentage of the cod harvest and fish in the early spring, when weather and safety conditions improve.

Pot split

The Council also apportioned the pot share (18.3%) of the BSAI Pacific cod fixed gear TAC between pot catcher processors and pot catcher vessels according to catch histories from 1998 - 2001 (Alternative 4, Option 3). This results in the following allocations:

- **15.0% pot catcher vessels**
- **3.3% to pot catcher processors**

The intent of the pot split is to allow for a similar level of stability as was provided for the hook-and-line vessels. The pot sectors have been competing for the 18.3% allocation since 2000, and since that time, the pot catcher vessel sector has harvested a higher percentage of the total pot sector harvest than in previous years. On average during 1995 - 1999 (excluding rollovers), the pot catcher vessel sector harvested about 75% - 76% of the BSAI Pacific cod harvested with pot gear, and the pot catcher processor sector harvested

the remaining 24% - 25%. In 2000 and 2001, the distribution was about 87% and 86% harvested by pot catcher vessels, respectively, and preliminary data from 2002 indicate nearly the same. Shorter crab seasons, and a delayed opilio crab season in 2000, have likely contributed to the relative increase in pot catcher vessel cod harvests. Not only do shorter seasons cause more pot vessels to be available, but participants are also looking to make up for reduced crab revenues in other fisheries. In general, BSAI Pacific cod is the second most important fishery to the pot catcher vessel fleet, accounting for about 21% of this fleet's total gross earnings in 2001. The majority of 2001 gross earnings for this sector came from crab (about 74%). By contrast, about 51% of the total revenues from pot catcher processors participating in this fishery in 2001 came from BSAI Pacific cod, with crab products accounting for about 48% of total revenues.

In selecting the preferred alternative, the Council also considered that BSAI Amendment 67 was implemented as of January 1, 2003. This amendment requires that fixed gear vessels ≥60' must qualify for a BSAI Pacific cod endorsement in order to continue participating in this fishery. Ultimately, this action will benefit those pot vessels with extensive histories that are dependent on the BSAI cod fishery, as some of the other pot vessels with large catching capacity that are primarily crab vessels will no longer be eligible to participate in the BSAI Pacific cod fishery. However, as of April 2003, NMFS has issued 11 pot CP endorsements on 11 licenses, six of which are interim status. So while staff estimates that only 6 pot catcher processors qualify under Amendment 67, several additional vessels will continue to be eligible to participate until the appeals process is completed. Likewise, while staff estimates that 57 pot catcher vessels ≥60' qualify under Amendment 67, NMFS has issued 82 pot CV endorsements as of April 2003, 33 of which are interim status. Thus, while the qualified participating vessels in both pot sectors will benefit from the fleet reduction under Amendment 67, the pot catcher processor sector contends that a separate allocation is still necessary to protect its historical harvest share due to the number of pot catcher vessels that are estimated to remain eligible in both the short and the long-term.

Under the Council's preferred alternative, it provides for an allocation of 18.3% of the total fixed gear BSAI Pacific cod TAC to vessels using pot gear. The 18.3% is then apportioned among the two pot sectors, 15.0% to pot catcher vessels and 3.3% to pot catcher processors, based on 1998 - 2001 catch histories. The Council selected this apportionment to account for past catch history as well as catch history using the most recent data available (2001). Using 1998 - 2001 catch history accounts for the three highest harvest years and the lowest harvest year by pot catcher vessels since 1995 (see Table 3.37). Note that combined with the status quo alternative, harvests by pot catcher vessels <60' accrue against the general 15.0% allocation for pot catcher vessels of all lengths, until that fishery is closed. Upon closure, subsequent harvests by the <60' pot catcher vessels accrue toward the 1.4% set aside for small vessels until that allocation is also fully harvested.

Rollover provisions

The Council also included four provisions to address quota that is projected to remain unused and reallocated to the fixed gear sectors during the season. Firstly, the Council recommended that any unharvested portion of the hook-and-line catcher vessel and the <60' pot and hook-and-line vessel quota that is projected to remain unused by a specified date shall be reallocated to the hook-and-line catcher processor fleet. This is part of the status quo under BSAI Amendment 64, in which inseason managers evaluate the status of these fixed gear sectors in September and reallocate any quota that is projected to remain unused by either sector to the hook-and-line catcher processor fleet. In the implementing regulations for Amendment 64, the reallocation is to occur September 15.

The Council noted that the amount of quota reallocated from the hook-and-line catcher vessel sector and the <60' catcher vessel sector has been and will likely remain relatively low, notwithstanding a significant

increase in the BSAI Pacific cod TAC, as both sectors appear capable of fully harvesting their current allocations. However, even though this option has a very modest if not negligible effect on the various sectors of the fixed gear fishery, it is appropriate to continue to include direction on how unused quota should be reallocated. Recall that the intent under BSAI Amendment 64 was that unused quota from the hook-and-line catcher vessel sector be reallocated to the same gear type. In addition, the 1.4% allocated to the <60' sector was funded from the hook-and-line catcher processor sector's historical share, in order to allow for growth in the small boat sector. The Council reasoned that if the quota should remain unused, it should be reallocated back to the hook-and-line catcher processors. The Council's preferred alternative for Amendment 77 remains consistent with that rationale.

Secondly, the Council recommended that any quota reallocated from the *trawl* sector shall be apportioned 95% to the hook-and-line catcher processor sector and 5% to the pot sectors. This is slightly different from the status quo, in which any quota from either the *trawl sector or jig sector* is reapportioned according to this split.[58] The Council decided to modify this provision to apply only to trawl quota in order to shift the distribution of unused jig quota from the hook-and-line catcher processor and pot sectors to the hook-and-line/pot catcher vessels <60'. While the number of <60' catcher vessels fishing off the 1.4% allocation has remained fairly stable, the relative effort has increased. The 1.4% allocation was fully harvested in both 2002 (by June 10) and 2003 (by April 22), and the Council's action provides for additional quota to be available to this sector in the spring and summer. Recall that the <60' sector fishes primarily in the spring and summer due to weather and safety concerns in the BSAI. Because the trawl fishery does not typically reach its prohibited species cap for halibut until September or later, any reallocations from the trawl sector would likely be too late in the year to benefit the <60' catcher vessels.

The Council continued to provide for trawl reallocations to be reallocated to the hook-and-line catcher processors (95%) and pot vessels (5%). Public testimony indicated that these sectors have come to depend on the trawl and jig reallocations late in the year to supplement their harvest shares. While trawl and jig reallocations combined have comprised about 17% and 4% of the hook-and-line catcher processor sector's and pot sectors' total catch on average during 2000 - 2002, respectively, the great majority is attributed to the trawl sector. Reallocated trawl quota has represented about 14% of the total hook-and-line catcher processor sector's harvest and 3% of the pot sectors' total harvest. Thus, while reallocated jig quota may still be important to these sectors, it represents a fairly small proportion of the total reallocated quota to these sectors since the implementation of Amendment 64.

Given that the above action is limited to trawl reallocations, the Council also included a separate provision in the preferred alternative to address reallocated quota from the jig sector. The jig sector currently receives 2% of the total BSAI Pacific cod TAC under BSAI Amendment 46, but has not harvested more than 6% of its total allocation since 1996. Thus, NMFS inseason managers have reallocated an average of 3,600 mt of unused jig quota to the hook-and-line catcher processors and pot sectors each year during 1995 - 2001. Under its preferred alternative, the Council recommended apportioning the 2% jig allocation on a trimester basis and reallocating any quota that is projected to remain unused by the end of each jig season to *catcher vessels <60' using hook-and-line or pot gear.* The seasonal apportionments of the jig quota are as follows:

40% (January 1 - April 30)
20% (May 1 - August 31)
40% (September 1 - December 31)

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[58] This apportionment is based on the actual harvest of reallocated quota from the trawl and jig sectors from 1996 - 1998.

Under this provision, any jig quota that is projected to remain unused at the end of each season will be reallocated to the <60' sector. Recall that the <60' hook-and-line and pot catcher vessels are not subject to seasonal apportionments, so the regulations allow this fleet to fish year-round. However, all hook-and-line vessels are subject to a halibut bycatch cap, and there is no halibut bycatch apportioned June 10 - August 15, effectively closing the directed Pacific cod fishery for hook-and-line vessels during that time. Thus, the Pacific cod quota set aside for <60' catcher vessels, whether attributed to the original allocation or a reallocation from the jig sector, can only be harvested by <60' pot vessels during June 10 - August 15.

If the average (1995 - 2001) amount of reallocated jig quota continues to occur in the future, this would represent more than three times the <60' catcher vessel sector's original allocation. It is uncertain whether this sector will be capable of fully harvesting this amount of quota. However, the first rollover provision provides for any quota that is projected to remain unused by the <60' sector to be reallocated to the hook-and-line catcher processors. Because the timing of the last potential reallocation from the jig sector may be fairly late in the year, the practical effect of this option is that the majority of the unused jig quota in the last trimester may be redirected to the hook-and-line catcher processor sector.

Finally, in the case that either pot sector does not harvest its entire allocation, the Council recommended that any unused quota from either pot sector would be redistributed to the other pot sector before it is reallocated to the hook-and-line sectors. This is consistent with the methodology used in the hook-and-line sector, by reallocating unused quota within the same gear type.

The Council also recommended, as part of its preferred alternative, not to include a sunset provision with this amendment. The Council can decide to review, modify, or revoke its action at any time through the normal Council process, and including a sunset date expressly increases the analytical and administrative efforts necessary to continue this action. Public testimony was provided in support of not including a sunset date, in order to prevent future disruption in the fixed gear BSAI Pacific cod fisheries. The intent is for this FMP amendment and the accompanying Federal regulations to be in place January 1, 2004.

4.0 CONSISTENCY WITH OTHER APPLICABLE LAWS

4.1 Consistency with National Standards

Below are listed the 10 National Standards as contained in the Magnuson-Stevens Act (Act), and a brief discussion of the consistency of the proposed alternatives with those National Standards, where applicable.

National Standard 1 - Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery

Pacific cod fisheries will be managed as they currently are, regardless of the specific allocations between sectors, to achieve the TAC without overfishing. Pacific cod stocks in the BSAI are not currently in danger of being overfished and are considered stable. Overall yield in terms of Pacific cod catch will be unaffected by the allocations. In terms of achieving 'optimum yield' from the fishery, the Act defines 'optimum', with respect to yield from the fishery, as the amount of fish which:

(A) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems;
(B) is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and,
(C) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Overall benefits to the Nation may be affected by these trade-offs, though our ability to quantify those effects is quite limited. While slight distributional impacts across fishing industry sectors are certainly implied by the alternatives, overall net benefits to the Nation would not be expected to change to an identifiable degree between the alternatives under consideration.

National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

Information in this analysis represents the most current, comprehensive set of information available to the Council, recognizing that some information (such as operational costs) is unavailable. Information previously developed on the fixed gear BSAI Pacific cod fisheries, as well as the most recent information available, has been incorporated into this analysis. It represents the best scientific information available.

National Standard 3- To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The annual TAC is set for BSAI Pacific cod according to the Council and NMFS's harvest specification process. NMFS conducts the stock assessment for Pacific cod and makes allowable biological catch recommendations to the Council. The Council sets the Pacific cod TAC based on the most recent stock assessment and survey information. The BSAI Pacific cod stock will continue to be managed as a single stock under the alternatives for establishing fixed gear allocations, and separate quotas for each sector would continue to be monitored in-season by NMFS.

National Standard 4 - Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation shall be (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

Allocation percentages being considered are based on industry sectors. None of the alternatives would discriminate between residents of different states. State residency is not a consideration in any of the alternatives. Furthermore, residents of various states (including Alaska, Washington and Oregon) participate in each of the major sectors affected by the allocations proposed in the alternatives. Although none of the alternatives would allocate or assign fishing privileges to individual fishermen, Alternatives 2 and 3 would continue to allocate a percentage of the annual Pacific cod quota to each participating fixed-gear sector. Alternative 4 would further allocate the quota between the two pot gear sectors. The allocations proposed under Alternatives 2, 3 and 4 would: (1) be based largely on the current allocations assigned to these sectors, with slight modifications intended to accommodate continuing participation by small vessels fishing with fixed gear; (2) afford each of the sectors the opportunity to conduct its fishery without competing for catch with the other sectors; and (3) promote conservation by avoiding the problems identified in the analysis that would result from competition between the sectors. These allocations would be made to industry sectors and would not result in the acquisition of fishing privileges by any particular individual, corporation or other entity.

National Standard 5 - Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

The wording of this standard was changed in the recent Magnuson-Stevens Act authorization, to 'consider' rather than 'promote' efficiency. Efficiency in the context of this change refers to economic efficiency, and the reason for the change, essentially, is to de-emphasize to some degree the importance of economics relative to other considerations (Senate Report of the Committee on Commerce, Science, and Transportation on S. 39, the Sustainable Fisheries Act, 1996). The analysis presents information relative to these perspectives, but does not highlight any one alternative in terms of this standard. National Standard 5 recognizes the importance of various other issues in addition to economic efficiency.

National Standard 6 - Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Continuing to establish explicit allocations between the pot and longline sectors will likely reduce the flexibility of fishermen to respond to variations among groundfish and crab stocks. For example, pot fishermen who traditionally rely on crab fisheries for the majority of their income, but switch to cod fishing in response to higher cod prices (or lower crab stocks for example), would still be able to do so, but their overall harvest would continue to be constrained by the adoption of a quota split. Conversely, in the event of lower cod quotas, adoption of a quota split would serve to protect the relatively static freezer longline vessels from increased participation by pot vessels. The freezer longliners have traditionally been the primary harvesters of cod among the fixed gear fleet (74% - 88% of the fixed gear quota over the past seven years).

Establishing explicit allocations between the pot gear sectors under Alternative 4 will not likely reduce the flexibility of pot fishermen to respond to variations among groundfish and crab stocks any more so than the general allocations considered under Alternatives 2 and 3. Alternative 4 serves to protect the traditional harvest levels taken by the pot catcher processors and pot catcher vessels, and by doing so, reduce the ability of one sector to expand their take over the other sector. It is important to note that upon implementation of the cod endorsements under Amendment 67 (effective January 1, 2003), the BSAI hook-and-line and pot gear Pacific cod fishery is managed under a more restrictive limited entry program in which participants must qualify for a cod endorsement. This will inhibit the flexibility of all fixed gear sectors to respond to variations in other fisheries in an attempt to meet the goal of comprehensive rationalization of the groundfish fisheries.

National Standard 7 - Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

All of the alternatives under consideration appear to be consistent with this standard.

National Standard 8 - Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Many of the coastal communities in Alaska and the Pacific Northwest are closely linked, culturally, economically, and socially to the crab and groundfish fisheries, in one way or another, whether it be processing, support businesses, or as the harbor/home port to fishermen and processing workers. Major groundfish and crab ports in Alaska that process catch from the BSAI include Dutch Harbor, St. Paul, Akutan, Sand Point, King Cove, and Kodiak. Additionally, the greater Seattle, Washington metropolitan area is home to many catcher and catcher processor vessels operating in these fisheries, as well as cold storage, transshipping, and secondary processing facilities. Summary information on these coastal communities is provided in the "Faces of the Fisheries" (NPFMC 1994), the Steller Sea Lion SEIS (NMFS 2001b) and the Draft Programmatic SEIS (2001a).

In terms of potential impacts resulting from the proposed fixed gear cod quota split, the analysts reviewed data similar to those reviewed for Amendment 64 and Amendment 68: (1) harvest levels by vessels in each sector; (2) price and revenues resulting from that harvest; (3) where those harvests are delivered for processing or for first sale (in the case of catcher/processors), and (4) the residency of the vessel owner as reported on the CFEC vessel license file. Some of this information was detailed in Chapter 3. Jig gear is not addressed under this section, as it is already allocated 2% of the Pacific cod TAC and that allocation would not be changed under this amendment. Much of the information cannot be presented in its detailed form due to confidentiality restrictions, but is summarized qualitatively. The information presented here does not attempt to trace the economic impact of these revenues through the communities involved, nor does this analysis attempt to predict changes in such economic activity from the proposed alternatives; rather, it is provided as a broad indicator of the relative importance of the Pacific cod fishery to vessels from these communities in the recent past.

It is important to note that the vessels described below do not represent the total number of fixed gear vessels which participated during 1995-1999 and contributed to the catch history on which the alternatives are based for the overall fixed gear split. This is because Amendment 67, effective January 1, 2003, reduces the number

of eligible vessels in the BSAI fixed gear cod fishery to an estimated 6 pot catcher processors, 57 pot catcher vessels ≥60', 40 hook-and-line catcher processors, and 9 hook-and-line catcher vessels ≥60'. These estimates are preliminary and based on staff's review at the current time. However, because individual determinations by the RAM Division on whether or not a license holder will receive a cod endorsement can be appealed, these numbers will not be final until all appeals are submitted and final agency determinations are made on each appeal.

In the meantime, persons who have appealed for a cod endorsement will receive an interim license for the gear type/operation(s) in which they believe they should qualify. Because it will take time to complete the appeals process, this section presents information on those vessels that staff estimates will be eligible in the long-term, based on a review of harvest data, the NMFS LLP database, and specific information on the nature of appeals as of April 2003. This information is presented to illustrate the relationship between the fixed gear sector and communities. It is likely, however, because of the number of interim licenses issued, that the final number of vessels with LLP licenses and endorsements to fish BSAI Pacific cod using non-trawl gear will change. In addition, catcher vessels under 60' are not required to hold a cod endorsement under Amendment 67, thus, it is uncertain how many vessels <60' will participate in the BSAI fixed gear cod fishery in the future. The qualification criteria and effects of the Council's preferred alternative for a gear/species endorsement under Amendment 67 is discussed in more detail in Section 3.3.1.

Revenue data for the catcher processor sectors were derived by applying average wholesale prices by product form to the NMFS Weekly Production Reports (WPR). Prices were developed from the annual COAR reports for cod, other groundfish, and crab species. Submission of the COAR report is required of all processing plants operating in Alaska and, since 2001, of catcher processor operations fishing in the EEZ off Alaska. The intent is to provide a snapshot of the revenues which might be associated with various coastal communities. The vessel owner residency data are from the most recent available CFEC vessel license file.[59]

Hook-and-line Catcher Processor Fleet - Community Linkages

The majority of the BSAI Pacific cod hook-and-line catcher processor sector is based in the Seattle area (30 of the 42 participating in 2001), though 8 vessel owners reported residency in Alaska (Kodiak and Petersburg, for example). Based on the landings and first wholesale information, the 2001 first wholesale value of Pacific cod products by all participating vessels in 2001 was $125.5 million. First wholesale value of Pacific cod products produced by Seattle based vessels constituted about 75 percent of the total cod revenues, with most of that coming from the H&G product form. Hook-and-line catcher processors based in Alaska realized about 23 percent of the total, with the remainder attributed to one vessel from California and three other vessels, the owner residency information of which is unknown. (In 2001, 20 of the 42 participating hook-and-line catcher processors submitted the COAR report.) As with the rest of this fleet, H&G product is the primary revenue source.

In 2001, as noted, the total value from Pacific cod for this fleet was $125.5 million, while the total value of all species to these vessels was $140.5 million; therefore almost 90 percent of this fleet's total revenues was

[59]The 2001 CFEC vessel license file was used in most cases. If residency information was not available for 2001, the 2000 file was used. No recent address information was found for 3 of the 42 hook-and-line catcher processors that fished BSAI Pacific cod in 2001.

attributed to the BSAI Pacific cod fishery. Most of the remainder was attributed to other groundfish products (about 8%), with a very small percentage (2%) attributed to crab and shellfish.[60]

Of the 40 hook-and-line catcher processors that appear eligible for a hook-and-line CP cod endorsement in the long-term, 31 of those vessel owners report residency in Washington, 7 in Alaska, one in California, and three are unknown. Total first wholesale value attributed to these endorsed vessels, from Pacific cod product, was over $118 million in 2001, with total revenues from all fisheries estimated at over $133 million. (Note that 4 of the 40 cod endorsed vessels did not participate in the BSAI cod fishery in 2001, and those four vessels did not appear to participate in any other fisheries off Alaska that year.) Therefore, it can be judged that the majority of 2001 income to those endorsed vessels (about 89%) is indeed from the Pacific cod fishery, with less than 9% attributed to other groundfish products and about 2% from crab and shellfish. Note however, that only 18 of the endorsed participants submitted COAR reports in 2001.

Hook-and-Line Catcher Vessel Fleet - Community Linkages

There is relatively little effort in this fishery by hook-and-line catcher vessels (less than 1% of the fixed gear total), and under Amendment 64 this sector received 0.3% of the fixed gear TAC, based on its 1995 - 1998 history. Neither alternative to continue (Alternative 2) or modify (Alternative 3) the fixed gear allocations changes this sector's allocation, therefore there is no discernable impact from the alternatives under consideration. One suboption considered under Alternative 4 would have allowed for any unused pot catcher vessel quota to be reallocated to the hook-and-line catcher vessel sector, which does not currently occur. However, this suboption was not included in the Council's preferred alternative, as the Council opted to instead reallocate any unused quota within a pot (catcher processor or catcher vessel) sector to the other pot sector and keep the quota within the same gear type.

It is likely that any future involvement by the hook-and-line catcher vessel fleet would continue to result in benefits to Alaskan coastal communities, through deliveries to coastal plants and income to the participants which could benefit their community of residence. The data show that 49 catcher vessels participated in the directed hook-and-line Pacific cod fishery in 2001, though these same vessels also fished several other fisheries and gear types. Total ex-vessel value of all fisheries for these vessels was $12.0 million in 2001, with Pacific cod accounting for less than $360,000, or about 3 percent of the total. More than 75 percent of this fleet's total gross revenue in 2001 was attributed to other groundfish and 20 percent was attributed to crab. Thirty-two of these 49 vessels were based (by vessel owner's reported residency) in Alaska, with the remaining vessel owners reporting residency in Washington, California, Idaho, and Oregon.

Staff estimates only 3 hook-and-line catcher vessels ≥60' from this fleet (and 6 hook-and-line catcher processors that did not meet the catcher processor endorsement criteria) will be eligible for a hook-and-line CV Pacific cod endorsement in the long-term. Two of the three endorsed catcher vessels are based in Kodiak, and one in Seattle. Total gross earnings attributed to these three vessels are not reported due to confidentiality requirements. (Of the 3 endorsed hook-and-line catcher vessels, one did not participate in the BSAI hook-and-line Pacific cod fishery in 2001, but did participate in other fisheries or with other gear types.)

[60] 'Crab and shellfish' includes both estimated wholesale value of crab products when vessels were operating as catcher processors, and estimated ex-vessel value of all shellfish products when vessels were operating as catcher vessels.

Pot Catcher Processor Fleet - Community Linkages

The data show that only 6 pot catcher processors participated in the directed BSAI Pacific cod fishery in 2001, although these same vessels also fished several other (crab) fisheries. Five of the six participating vessels were based (by vessel owner residency) in Washington and one in Kodiak. In 2001, the first wholesale value of Pacific cod products produced by all six participating vessels was about $8.0 million, while the total value of output from all species to these vessels was about $15.8 million.[61] Therefore, about 51 percent of this fleet's estimated total revenues is attributed to the Pacific cod fishery in 2001. Other groundfish accounted for about 1 percent and crab products[62] accounted for about 48 percent of total revenues. Similar to the longline fleet, eastern and western cut H&G (headed and gutted) was the primary product form for Pacific cod, with a few ancillary products.

Of the six pot catcher processors that appear eligible for a pot CP cod endorsement in the long-term, five of those are based in Seattle and one in Kodiak. Only four of the six endorsed vessels operated as catcher processors in the BSAI Pacific cod fishery in 2001, and two of these submitted a COAR report. (However, all six endorsed vessels fished crab in 2001 and one acted as a mothership for both cod and other groundfish.) Total estimated first wholesale value attributed to these vessels, from Pacific cod product, was almost $6.6 million in 2001 (this includes the four vessels that participated in the cod fishery as catcher processors and the one vessel that operated as a mothership for cod), while total revenues from all species exceeded $10.6 million. Cod thus represents almost 62% of the total revenues for this fleet in 2001, with crab products accounting for 36% and other groundfish making up another 2%. This indicates that in 2001, Pacific cod represented the majority of the overall income to this sector, but much less actual and relative overall income than is attributed to cod in the hook-and-line catcher processor sector. Crab continues to make up a considerable portion of the pot sector's overall revenues, while the hook-and-line sector is less dependent on other groundfish and crab products.

Pot Catcher Vessel Fleet - Community Linkages

This sector is much more numerous and more widely dispersed geographically than any of the other sectors involved in the Pacific cod fishery. They also exhibit a wider variety of fisheries and gear types, in addition to fishing for cod with pot gear. The 2001 data show 75 catcher vessels which targeted Pacific cod with pot gear, with 20 of those from Alaska and 55 from Washington or other states. The Alaskan-based vessel owners reported residency primarily in Kodiak, with a few owners from King Cove, Homer, and Anchorage. The non-Alaskan based vessels were widely distributed through the Pacific Northwest, with the majority of vessel owners from Seattle. In 2001, the total value from BSAI Pacific cod for this fleet was about $8.0 million, while the total value of all species to these vessels was about $38.1 million; therefore about 21% of this fleet's total 2001 gross earnings was from the Pacific cod fishery. The majority of 2001 gross earnings for this sector came from crab (about 74 percent).

Staff estimates that 54 pot catcher vessels ≥60' (and 3 pot catcher processors that did not meet the catcher processor endorsement criteria) will be eligible to participate in this fishery in the long-term under Amendment 67. Of the 54 endorsed pot catcher vessels, 15 are from Alaska and 39 are from Washington or

[61] The price information is derived from the four pot catcher processors that submitted a COAR report for 2001.

[62] Crab products includes both estimated wholesale value of crab products when vessels were operating as catcher processors, and estimated ex-vessel value of crab products when vessels were operating as catcher vessels.

other states. In 2001, total revenues attributable to Pacific cod caught with pot gear for these 54 vessels was $5.8 million, while total revenues for these same vessels in all fisheries (all species and gear types) totaled $26.4 million, so Pacific cod represented nearly 22% of their total gross revenues. Crab fisheries accounted for the vast majority of gross earnings for the endorsed vessels as well ($19.4 million or about 74 percent), while other groundfish accounted for another $1.2 million. (Of the 54 endorsed pot catcher vessels, ten did not participate in the BSAI pot cod fishery in 2001, but did participate in other fisheries.)

Shorebased Processors Taking Catcher Vessel Deliveries

Other than from trawl vessels, deliveries of BSAI cod to shorebased processors comes primarily from pot boats. Of the total pounds delivered by fixed gear catcher vessels to shoreside plants in 2001, 96 percent were delivered by pot boats. In 2001, about 550 mt was delivered shoreside by longline catcher vessels, while about 12,740 mt was delivered shoreside by pot catcher vessels. The vast majority (96%) of the longline shoreside deliveries were to shore plants in Dutch Harbor, with much smaller amounts delivered to Adak, King Cove, Kenai, and Saint Paul. Pot boat deliveries were also primarily (66%) to shore plants in Dutch Harbor, with lesser amounts to Akutan, Saint Paul, King Cove, Kodiak, and Adak.[63] These deliveries of Pacific cod contribute to the economies of the communities in which the shorebased plants are located, though these amounts are unlikely to be significant in the context of the other groundfish, pollock, and crab processing activities that occur in these same plants and communities. With the exception of the King Cove plant, they all have small purchases of Pacific cod relative to other groundfish, particularly pollock. To the extent they do purchase cod, the majority of that comes from trawl deliveries. For the King Cove plant, Pacific cod does constitute the majority of their groundfish purchases (over half), with nearly half of that amount coming from pot vessels.

A split of the quota as proposed would continue to constrain the amount of cod going to these plants to approximate the level of landings recorded over the past four years, if one assumes that the pot vessel share of the pot harvest and deliveries would increase under the baseline (no action alternative) or if Alternative 4 is not selected. However, these same plants are likely to be limited to their historic levels of cod processing regardless, via the sideboard provisions of the American Fisheries Act (AFA).

National Standard 9 -Conservation and management measures shall, to the extent practicable, (A) minimize bycatch, and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

Chapter 2 presented information on historical bycatch patterns in the Pacific cod fixed gear target fisheries. In summary, bycatch rates in the Pacific cod fisheries are low overall. Some differences among sectors are evident, with the hook-and-line sector having higher halibut bycatch, while the pot sector has higher crab bycatch. Because each of the alternatives (with the possible exception of Alternative 1) establish a split of the fixed gear Pacific cod quota similar to what has occurred in the recent past, they would not be expected to have any significant bycatch implications.

[63] In addition, about 15% of the total cod harvest by fixed gear catcher vessels was delivered to floaters, catcher processors, or the vessels acted as catcher sellers.

National Standard 10 - Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The alternatives under consideration appear to be consistent with this standard. None of the alternatives or options proposed to continue or modify the fixed gear allocation percentages would change safety requirements for fishing vessels. In addition, none of the options proposed to provide a direct allocation to each pot gear sector would change safety requirements for fishing vessels. If the alternatives reduce competition among the fixed gear sectors to harvest their historical share of the BSAI Pacific cod TAC, it may enhance safety at sea.

4.2 Section 303(a)(9) - Fisheries Impact Statement (Spillover Impacts)

This section of the Magnuson-Stevens Act requires that any management measure submitted by the Council take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries. Impacts to participants in the fixed gear cod fisheries is the topic of Chapter 3. Potential impacts to other fisheries could result from a change in the Pacific cod fixed gear apportionments, as vessels which may be constrained by that allocation may move into other fisheries to attempt to make up lost revenues. As an example, pot vessels which are currently qualified in the crab fisheries, and may be constrained in the future by a cod quota split, could exert additional effort in the crab fisheries. However, the Council recently approved a program to comprehensively rationalize the BSAI crab fisheries in June 2002. Should the Council's preferred alternative for the BSAI crab fisheries be approved by the Secretary, participants will be constrained by the amount of quota for which they qualify under a specified set of qualifying years (NPFMC 2002). Thus, the fixed gear cod vessels under consideration in this amendment that have qualifying history in the BSAI crab fisheries will receive quota based on past participation. However, those vessels will find it more difficult to substantially expand their participation in the BSAI crab fisheries under this future program. (See Section 3.6 for a list of the endorsement combinations for vessels that are qualified to fish Pacific cod relative to those that are projected to qualify to fish both Pacific cod and crab.)

The pot vessels at issue in this amendment may also potentially exert additional effort in Gulf of Alaska state water cod fisheries which are not limited entry, and which are limited to pot and jig gear. However, the alternatives under consideration propose to split the Pacific cod hook-and-line and pot gear TAC based on the historical harvest distribution among the sectors according to catch histories from 1995 - 1998 or 1995 - 1999, which is the same as or very similar to the allocations that have been in effect under Amendment 64 since mid-2000. Thus, it is not expected that any sector would be severely constrained compared to what they have harvested in the recent past.

In addition, recall that under Amendment 67, the Pacific cod fixed gear fishery in Federal waters will be limited to those individual vessels that qualify for a BSAI Pacific cod endorsement by meeting specific year and poundage requirements. This amendment became effective January 1, 2003. Thus, " cod endorsed" fixed gear vessels will experience less competition for the fixed gear Pacific cod TAC from other fixed gear vessels under Amendment 67. Because Amendment 67 does not affect hook-and-line and pot vessels <60', it is possible that the <60' sector could be constrained by a separate allocation in the future and potentially move into other fisheries. However, the <60' fleet has historically taken a very small percentage of the total fixed gear vessel cod harvest, averaging about 0.27% (300 mt) during the period 1995 - 1999 and 0.75% (800 mt) during 2000 - 2001. Under Alternatives 2 and 3 there is an option to continue a separate cod allocation for the <60' fleet (1.4% of the hook-and-line and pot gear BSAI cod TAC), which is 1.1 percentage points greater than this sector's average harvest in 1995 -1999. Thus, it is not expected, because of the anticipated

effects of Amendment 67 and the option to continue a separate allocation to <60' vessels, that this action will have significant spillover effects.

4.3 Initial Regulatory Flexibility Analysis (IRFA)

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either 'certify' that the action will not have a significant adverse impact on a substantial number of small entities, and support that certification with the "factual basis" upon which the decision is based; or it must prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities. When an agency publishes a final rule, it must prepare a Final Regulatory Flexibility Analysis (FRFA).

Analysis requirements for the IRFA are described below in more detail. In the case of the issues and alternatives considered in this analysis (BSAI Amendment 77), the Council has recommended a preferred alternative, and, if approved by the Secretary, NMFS will develop proposed regulatory amendments to implement the Council's preferred alternative. The IRFA contained in this section reflects the preferred alternative selected by the Council in June 2003.

The IRFA must contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;

2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;

3. The use of performance rather than design standards;

4. An exemption from coverage of the rule, or any part thereof, for such small entities.

In determining the scope, or 'universe', of the entities to be considered in an IRFA, staff generally includes only those entities, both large and small, that are directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis. NOAA interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the fishing sectors subject to the proposed regulatory action are insufficient, at present, to permit preparation of a "factual basis" upon which to certify that the preferred alternative does not have the potential to result in a "significant adverse impact on a substantial number of small entities" (as those terms are defined under the RFA). Because, based on all available information, it is not possible to 'certify' this outcome, should the proposed action be adopted by the Secretary, a formal IRFA, focusing on the complete range of available alternatives (including the designated "preferred" alternative), has been prepared and is included in this package for Secretarial review.

4.3.1 Definition of a small entity

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) small government jurisdictions.

Small businesses. Section 601(3) of the RFA defines a 'small business' as having the same meaning as 'small business concern' which is defined under Section 3 of the Small Business Act (SBA). 'Small business' or 'small business concern' includes any firm that is independently owned and operated and not dominant in its field of operation. The SBA has further defined a "small business concern" as one "organized for profit, with a place of business located in the U.S., and which operates primarily within the U.S. or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor... A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture."

The SBA has established size criteria for all major industry sectors in the U.S. including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of $3.5 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a

small business if it meets the $3.5 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small businesses if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

Small organizations. The RFA defines "small organizations" as any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of less than 50,000.

4.3.2 Reason for considering the proposed action

The fixed gear fisheries for Pacific cod in the Bering Sea and Aleutian Islands are fully utilized. Members of the fixed gear sector have expressed concern that the expiration of the fixed gear allocations in place under Amendment 64 will cause serious disruption to the BSAI Pacific cod fixed gear fisheries. In addition, pot catcher processors who have made significant long-term investments, have extensive catch histories, and are significantly dependent on the BSAI cod fisheries have asserted that this sector needs protection from pot catcher vessels who want to increase their Pacific cod harvest. Members of the fixed gear sector have expressed concerns that structural changes in other fisheries and fluctuations in relative fish prices will disrupt the current fixed gear Pacific cod fishery if the distinct allocations among the fixed gear sectors are allowed to expire on December 31, 2003. Continuing, or slightly modifying, the current allocations in regulation is considered a reasonable step to help mitigate against future instability among participants in these fisheries. The current allocations are roughly based on past catch distributions among the fixed gear sectors from 1995 - 1998, with the addition of a separate allocation to hook-and-line and pot vessels <60' that is greater than that sector's relative historical catch.

4.3.3 Objectives of, and legal basis for, the proposed action

The legal basis for this action is that allocation of the Pacific cod TAC is allowed under the Magnuson-Stevens Fishery Conservation and Management Act. Part of the stated purpose of the MSA is to promote domestic commercial and recreational fishing under sound conservation and management principles, as well as to provide for the preparation and implementation, in accordance with national standards, of fishery management plans which will achieve and maintain, on a continuing basis, the optimum yield from each fishery (Section 2 (b)). The objectives of the proposed action, as stated previously, are to maintain stability in the BSAI fixed gear Pacific cod fishery by continuing to provide separate allocations for hook-and-line catcher processors, hook-and-line catcher vessels, pot catcher processors, pot catcher vessels, and hook-and-line and pot vessels <60'. The further objective of the proposed action is to provide for these separate allocations in a manner that ensures the catch distribution that has historically occurred among the fixed gear sectors, with an additional allocation made for the smallest vessel class in the BSAI Pacific cod fisheries (<60' catcher vessels).

4.3.4 Number and description of affected small entities

For purposes of the IRFA, all Pacific cod hook-and-line and pot catcher vessels can be considered small businesses, with annual receipts of less than $3.5 million. Under proposed Amendment 67 to the BSAI Groundfish FMP, a total of about 57 catcher vessels ≥60' (3 longline and 54 pot) would receive licenses to

participate in the Bering Sea Pacific cod fixed gear fishery (note that 129 unique longline and 226 unique pot catcher vessels of any length participated at any time from 1995 - 2001). The vessels that would be considered large entities are either affiliated under owners of multiple vessels or are catcher processors. However, little is known about the ownership structure of the vessels in the fleet, so it is possible that this IRFA overestimates the number of small entities which may be directly regulated by the proposed action.

The pot fleet in most cases earns most of their revenues in the crab fisheries, but supplements that income with revenues from groundfish, primarily cod (NMFS 2001a). In 2001, for instance, of the 54 pot catcher vessels ≥60' that appear to qualify for a BSAI cod endorsement,[64] crab harvests accounted for about 74% of their total revenues ($26.4 million) and cod accounted for about 22%. Other groundfish accounted for another $1.2 million. (Note that of the 54 endorsed pot catcher vessels, ten did not participate in the BSAI pot cod fishery in 2001, but did participate in other fisheries.) Given the current status of the crab fisheries compared to 1996 and 1997, total pot catcher vessel revenues have declined due to lower crab GHLs, lower prices, and competition from increasing supplies of Russian crab in Japanese markets (NMFS 2001a, p.2-71). Thus, the pot fleet on average is generating a smaller percentage of their overall income from the BSAI crab fisheries, and in the near future, crab quotas are likely to continue to decrease.

Preliminary estimates show that the BSAI pot cod fleet would be reduced to approximately 6 pot vessels with a pot CP endorsement and 57 vessels ≥60' with a pot CV endorsement under BSAI Amendment 67. (Note that three of the 57 vessels with a pot CV endorsement are pot catcher processors that did not meet the CP qualification criteria). The full effects of this amendment have not yet been realized since implementation on January 1, 2003, as time is necessary to administer the appeals processes associated with interim licenses. However, all 54 of the pot catcher vessels (and one of the pot catcher processors) that potentially qualify for a cod CV endorsement appear to have earned gross revenues of less than $3.5 million and thus are considered small businesses. However, as previously stated, little is known about the ownership structure of the vessels in the fleet, for instance whether one entity is affiliated with owners of multiple vessels, so it is possible that this IRFA overestimates the number of small entities by estimating that all pot catcher vessels that would be affected would be considered small entities. One or more of the pot catcher processor vessels may be considered large entities, earning revenues of greater than $3.5 million in 2001.

Data regarding the 3 hook-and-line catcher vessels that qualify for a cod endorsement are confidential, due to the small number of participants. However, 9 total vessels (3 catcher vessels and 6 catcher processors) appear to qualify for a hook-and-line cod CV endorsements. Of these 9 vessels, all appear to have earned revenues of less than $3.5 million and thus are considered small businesses. Staff also estimates that 40 hook-and-line catcher processors qualify for a cod endorsement. Several of these vessels reported annual receipts of less than $3.5 million, however, little is known about the ownership structure of this fleet, so it is not possible to develop a meaningful estimate.

Recall that Amendment 67 does not restrict the smallest entities in the catcher vessel fleets–pot and hook-and-line catcher vessels <60' do not need a Pacific cod endorsement to continue prosecuting the BSAI Pacific cod fishery. There are approximately 125 pot and hook-and-line vessels <60' that appear to be LLP qualified to use non-trawl gear in the BSAI groundfish fisheries (from RAM's list as of April 2003). Thirty-two unique pot catcher vessels <60' and 96 hook-and-line catcher vessels <60' are documented to have made at least one

[64] Recall that three additional pot catcher processor vessels met the qualifying criteria for a pot CV endorsement (as opposed to a pot CP endorsement); thus 57 total vessels are estimated to receive a pot CV endorsement in the long-term.

landing in the directed BSAI Pacific cod fishery during 1995 - 2001. On average since 1995, however, only 18 hook-and-line and 5 pot catcher vessels have participated in any one year. In essence, a better estimate of the number of small entities (catcher vessels) that would be directly regulated by this action may be 87 (55 pot vessels ≥60' plus 5 pot vessels <60' plus 9 hook-and-line vessels ≥60' plus 18 longline vessels <60').

4.3.5 Recordkeeping and reporting requirements

Implementation of the proposed amendment would not change the overall reporting structure and recordkeeping requirements of the vessels in the fixed gear BSAI Pacific cod fisheries.

4.3.6 Relevant Federal rules that may duplicate, overlap, or conflict with proposed action

This analysis did not uncover any existing Federal rules that duplicate, overlap, or conflict with any of the actions proposed in the alternatives.

4.3.7 Description of significant alternatives

The alternatives under consideration are described in detail in Section 3.4, and the reason for considering the action is in Section 3.1 and again in Section 4.3.2. Alternative 1 is the no action alternative, which would allow the fixed gear allocations established under BSAI Amendment 64 to expire on December 31, 2003.

The Council's preferred alternative is Alternative 2 (status quo), which would continue the allocations of the fixed gear share of the BSAI Pacific cod TAC currently in place under Amendment 64: hook-and-line catcher processors - 80%; hook-and-line catcher vessels - 0.3%; pot vessels - 18.3%; and hook-and-line and pot vessels <60' - 1.4%. Note that these allocations are based roughly on the distribution of catch among sectors during 1995 - 1998, with the exception of the allocation to vessels <60'. The proposed action would continue the existing allocation established explicitly to provide for the smaller fixed gear operations (i.e., the 1.4% allocation for hook-and-line and pot vessels <60'). Exemptions are also provided to the classes of smaller vessels under the current License Limitation Program (e.g., LLP exemption for vessels <32' LOA in the BSAI; Pacific cod endorsement exemption for vessels <60' LOA) in recognition of the disproportionate impact that may potentially accrue to these smallest of the small elements of the industry.

Alternative 3 would modify the current allocations in regulation to be based on the distribution of catch among the sectors during 1995 - 1999, as follows: hook-and-line catcher processors - 81.6%; hook-and-line catcher vessels - 0.3%; and pot vessels - 18.1%. Alternative 3 also has an option to continue the allocation to the <60' sector, which changes the apportionments as follows: hook-and-line catcher processors - 80.5%; hook-and-line catcher vessels - 0.3%; pot vessels - 17.8%; and hook-and-line and pot vessels <60' - 1.4%.

Both Alternatives 2 and 3 also contain three primary options for addressing quota that is reallocated inseason from other gear sectors. Among these is an option, included in the Council's preferred alternative, which would protect and enhance the potential share of the cod harvest accruing to small operations (e.g., vessels <60' LOA using pot or hook-and-line gear). The Council included a provision which would reapportion the jig gear allocation (2% of the overall BSAI Pacific cod TAC) by trimester, and reallocate any unused jig quota to the <60' fixed gear sector at the end of each season. Depending upon the amount of reallocated jig quota in a given year, this could effectively more than triple the amount of quota allocated to the <60' fixed gear sector. This provision was explicitly included to provide for additional opportunities for the smallest operators, by providing more quota at the time of the season when it can be most beneficial. Currently under

Amendment 64, the vast majority of the unused jig quota is reallocated to the hook-and-line catcher processor sector. Under the Council's preferred alternative under this amendment, the <60' sector would have the first opportunity to harvest any unused jig quota, and if the <60' sector was unable to harvest the full amount, only then would the quota be reallocated to the hook-and-line catcher processor sector late in the year.

Alternative 4 would further split the pot share of the BSAI Pacific cod TAC between the pot catcher processor sector and the pot catcher vessel sector. There are four options included for consideration to determine the split, based on a combination of catch histories from 1995 - 2001. These options would allocate between 13% - 24% of the total pot share of the BSAI Pacific cod TAC to pot catcher processors and 76% - 87% to pot catcher vessels. Also included under Alternative 4 are two suboptions which would specify how to reallocate any unused pot quota. Alternative 4 could only be selected in combination with Alternative 2 or 3, since the pot sector as a whole must be apportioned a distinct allocation of the BSAI Pacific cod TAC in order for a further split between pot catcher processors and pot catcher vessels to occur. The Council's preferred alternative includes Alternative 4, Option 3, to split the 18.3% allocated to pot vessels as follows: 15.0% to pot catcher vessels and 3.3% to pot catcher processors. The Council also selected Suboption a, which provides for any portion of the Pacific cod pot catcher processor or pot catcher vessel quota that is projected to remain unused to be reallocated to the other pot sector before it is reallocated to the hook-and-line sectors.

The Council therefore identified four primary alternatives to be analyzed which would meet the stated objectives of this action, and the Council's preferred alternative minimizes adverse impacts on small entities. In essence, the Council's preferred alternative expands opportunities for small entities, by providing for additional quota to be available to hook-and-line and pot catcher vessels <60' than was provided for under Amendment 64. For a complete treatment of each of these alternatives, options, and suboptions, refer to the RIR in Chapter 3. The comprehensive economic analysis of all of the alternatives and options under consideration is provided in Section 3.4. As previously noted, virtually all of the potentially regulated entities are assumed to be "small", as defined within the RFA.

4.3.8 Measures taken to reduce impacts on small entities

Most firms operating in the fishery regulated by the proposed action have expected annual gross revenues of less than $3.5 million. The ownership characteristics of vessels operating in the fishery are not available and therefore it is not possible to determine with certainty, if they are independently owned and operated, or affiliated in one way or another with a larger parent company. Furthermore, because we cannot quantify the exact number of small entities that may be directly regulated by this action, we cannot make a definitive finding of non-significance for the proposed action under the RFA.

However, because the proposed action would result in continuing to maintain a percentage distribution very close to the average harvest level during 1995 - 1998 or 1995 - 1999, net effects would be expected to be minimal relative to the no action alternative. Again, this assumes that the distribution of harvest would not change significantly under the no action alternative. Estimates of such a potential change in the absence of fixed gear allocations cannot be made, although indications are that each sector may want to increase its relative share of the cod TAC, especially given the current opilio crab GHL and the limited opportunities in alternative fisheries. The fixed gear allocations under Amendment 64 have been in place since mid-2000, so each sector has been constrained by those allocations in recent years. However, the pot share of the fixed gear Pacific cod TAC has not been further apportioned between pot catcher processors and pot catcher vessels. The pot catcher vessel sector has increased its relative share of the pot gear quota in 2000 and 2001,

and the number of <60' pot vessels is not constrained by the cod endorsement requirement under Amendment 67.

As with many allocation-based management measures, the alternatives propose a percentage allocation of the TAC among competing groups of vessels. In this case, vessels in each group are primarily small entities representing a tradeoff in terms of impacts; i.e., some small entities could be negatively affected, and others positively affected. In the Council's preferred alternative (and under Amendment 64), a separate allocation of 1.4% was made to hook-and-line and pot catcher vessels <60', the effect of which is to allocate more cod to catcher vessels delivering to shorebased processors than they had historically harvested. (This sector harvested only 0.3% of the total fixed gear BSAI Pacific cod catch in 1995 - 1998.) That type of allocation will tend to disproportionately benefit the smallest entities among the fishing sectors. Under Amendment 64, the hook-and-line catcher processor fleet, with the highest proportion of relatively large entities, received a smaller allocation to balance the increase given to small catcher vessels. This situation was maintained under the Council's preferred alternative for Amendment 77.

In addition, there are options under both Alternatives 2 and 3 to provide additional quota to the <60' catcher vessel sector that is reallocated from the jig sector mid-season. This is quota that has been largely reallocated to the hook-and-line catcher processor sector in the past.[65] The Council's preferred alternative recommends changing the distribution of reallocated jig quota so that it is first reallocated to the <60' hook-and-line/pot catcher vessel sector. Should the <60' sector be unable to harvest all of its allocation, only then is it reallocated to the hook-and-line catcher processor sector. As noted above, this option could provide more than three times the amount of cod quota to the <60' sector than was available under Amendment 64. The Council included this provision in response to the increased effort in the <60' fixed gear sector, resulting in additional quota available to the <60' fleet in the spring and summer when this sector is most likely to be fishing.

The Council also recommended establishing separate allocations for pot catcher processors and pot catcher vessels, essentially splitting the 18.3% pot share of the BSAI Pacific cod fixed gear TAC between the two sectors. The Council recommended basing the allocations on the relative catch history of each sector during 1998 - 2001 (Alternative 4, Option 3). This results in an allocation of 15.0% to pot catcher vessels and 3.3% to pot catcher processors. This option represents the middle ground with respect to the options that were under consideration by the Council. Among the four options for establishing separate pot sector allocations, pot catcher vessels could receive 13.9% - 15.9% of the pot share of the fixed gear BSAI Pacific cod TAC, with pot catcher processors receiving the remaining 2.4% - 4.4%.

From one perspective, setting a percentage allocation will keep one sector from increasing its share relative to what it may be able to harvest under the no action alternative. Based on the information in the analysis and public testimony, it appears that the pot catcher vessel sector is more likely to increase its relative share in the absence of a pot sector split. From another perspective, establishing separate BSAI Pacific cod allocations for the pot sectors serves to protect the relative historical harvest share of these small entities.

Recall also that a recent decision by the Council will likely have mitigating effects to some degree. One of the points raised in opposition to the split when it was considered in 1999 under Amendment 64 is that there is considerable latent capacity in the pot fleet (many pot vessels are qualified under the LLP but to date have

[65] Currently under Amendment 64, any unused quota from the jig and trawl sectors is reallocated 95% to the hook-and-line catcher processors and 5% to pot vessels, based on the relative harvest distribution of reallocated quota from 1996 - 1998.

not participated to a great degree in the cod fisheries), and freezing that sector's share of the cod quota would disadvantage those pot vessels which do participate significantly in the cod fishery. They would have potential competition for a relatively small quota from a relatively large number of LLP qualified vessels. There were also hook-and-line vessels which represented potential latent capacity and could impact that sector in the same way, though the degree of that potential was relatively less for that sector. To mitigate this problem, the Council approved Amendment 67 in April 2001, which modified the License Limitation Program by adopting species and gear endorsements for the cod fisheries, based on a set of minimum level of landings and years of participation as described in Section 3.3.1. The intent of this action is to eliminate the latent capacity described above, and create a more stable operating environment for the remaining vessels in each of the fixed gear sectors. The Council also provided an exemption from the cod endorsement requirements for fixed gear vessels <60', in order to allow for new entry in this sector. Amendment 67 was implemented in Federal regulations and became effective on January 1, 2003.

Additional detail will be provided in the Final Regulatory Flexibility Analysis by NMFS. However, no substantial changes in the structure of the fishery are expected to occur as a result of the options under consideration; on the contrary, the Council's preferred alternative continues to establish separate allocations for each fixed gear sector based on the harvests that have been made by each sector in the recent past.

4.4 Marine Mammal Protection Act (MMPA)

The MMPA of 1992 (16 U.S.C. 1361 *et seq.*), as amended through 1996, establishes a federal responsibility to conserve marine mammals with management responsibility for cetaceans (whales) and pinnipeds (seals) other than walrus vested with the Department of Commerce, NMFS. The Department of the Interior, U.S. Fish and Wildlife Service, is responsible for all other marine mammals in Alaska including sea otters, walrus, and polar bear. Congress found that certain species and population stocks of marine mammals are or may be in danger of depletion due to human activities. Congress also declared that marine mammals are resources of great international significance and should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management.

Species listed under the Endangered Species Act present in the management area were listed in the previous section. Marine mammals not listed under the ESA that may be present in the BSAI management area include cetaceans, [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)] as well as pinnipeds [Pacific harbor seal (*Phoca vitulina*), northern fur seal (*Callorhinus ursinus*), Pacific walrus (*Odobenus rosmarus*), spotted seal (*Phoca largha*), bearded seal (*Erignathus barbatus*), ringed seal (*Phoca hispida*) and ribbon seal (*Phoca fasciata*)], and the sea otter (*Enhydra lutris*).

The primary management objective of the MMPA is to maintain the health and stability of the marine ecosystem, with a goal of obtaining an optimum sustainable population of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in concert with the provisions of the Endangered Species Act (see Section 2.2.4). The Secretary is required to give full consideration to all factors regarding regulations applicable to the "take" of marine mammals, including the conservation, development, and utilization of fishery resources, and the economic and technological feasibility of implementing the regulations. If a fishery affects a marine mammal population, then the potential impacts of the fishery must be analyzed in the appropriate EA or EIS, and the Council or NMFS may be requested to consider regulations to mitigate adverse impacts. This action is intended to continue to establish in regulation specific

allocations of Pacific cod to each fixed gear sector in the BSAI, based on the historical harvest distribution among sectors. No adverse impacts on marine mammals are anticipated as a result of implementing the alternatives under consideration.

4.5 Coastal Zone Management Act

Implementation of each of the alternatives would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Management Program within the meaning of Section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

4.6 Executive Order 12898

E. O. 12898 focuses on environmental justice in relation to minority populations and low-income populations. The EPA defines environmental justice (EJ) as the: "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." This executive order was spurred by the growing need to address the impacts of environmental pollution on particular segments of our society. This order (Environmental Justice, 59 Fed. Reg. 7629) requires each Federal agency to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." The EPA responded by developing an Environmental Justice Strategy which focuses the agency's efforts in addressing these concerns.

In order to determine whether environmental justice concerns exist, the demographics of the affected area should be examined to determine whether minority populations and low-income populations are present, and if so, a determination must be made as to whether implementation of the alternatives may cause disproportionately high and adverse human health or environmental effects on these populations. Environmental justice concerns typically embody pollution and other environmental health issues, but the EPA has stated that addressing environmental justice concerns is consistent with NEPA and thus all Federal agencies are required to identify and address these issues.

Pot and hook-and-line vessels are owned by persons living throughout Alaska, the Pacific Northwest, and other states in the U.S. Under Amendment 67, an estimated 6 pot catcher processors would be eligible for a pot CP endorsement to fish BSAI Pacific cod: five of these vessel owners reported residency in Washington and one in Alaska. Of the 57 pot vessels ≥60' that staff estimates qualify under the Council's preferred alternative for a pot CV cod endorsement, 35 are home ported in Washington, 15 in Alaska, and the remaining 7 are in California and Oregon. Of the Alaska-endorsed vessels, 13 are from Kodiak, 1 from King Cove, and 1 from Homer.

In the hook-and-line fleet, an estimated 9 vessels will qualify for a hook-and-line CV endorsement and 40 catcher processors will qualify for a hook-and-line CP endorsement. Of the 9 vessels with a hook-and-line CV endorsement, three of those have been operating as catcher vessels (two from Alaska and one from Seattle) and six were operating as catcher processors. Of the 40 hook-and-line catcher processors that appear eligible for a hook-and-line CP cod endorsement in the long-term, 31 of those vessel owners report residency in Washington, 7 in Alaska, one in California, and three are unknown. A discussion of the relative importance of fisheries to these regions and their population and minority profiles are included in Chapter 3 of the Steller Sea Lion SEIS (Section 3.12.2.1) and Appendix F(4)(NMFS 2001b).

Overall, the population structures of these regions vary considerably, but in the Aleutian and Kodiak regions there are predominant Alaska Native and other minority populations. Kodiak is about 13 percent Native. The predominant minority in the city and its surroundings is Asian and Pacific Islanders, followed by Natives and Blacks. In King Cove, Alaska Natives make up about 48% of the population, with Asian and Pacific Islanders the next largest minority population. While Washington and Oregon's relationship to the Alaska groundfish fishery is more involved than some regions of Alaska (in terms of absolute number of jobs), it could be argued that the fishery is less important or vital than for the Alaskan communities considered. For example, the size of Seattle dilutes the overall impact of the Alaska groundfish fishery jobs, whereas in Alaskan communities such jobs represent a much greater proportion of the total employment in the community (Appendix F, p. FI-75). Thus, while the majority of vessel owners that appear eligible to fish BSAI cod in the future report residency in Washington, there are relatively more individual catcher vessels that are attributed to Alaskan communities than there are catcher processors. It is this distinction, and the minority populations associated with these communities, that would determine whether this action may have any environmental justice impacts.

The difficulty associated with determining whether one sector would gain an advantage over the other under this action has been previously discussed in Section 3.0 and the IRFA. It is extremely difficult to predict whether, in the future, absent a fixed gear sector split, effort in one sector (for example, pot catcher vessels) would increase above the percentages experienced in 2001 or remain closer to the historical averages represented by the options. This makes it difficult to determine whether the action would have a constraining effect on the any sector in the future and the associated social and economic impacts. In addition, with the implementation of Amendment 67, both sectors will experience a substantial reduction in the fleets, making it more difficult to predict the relative harvest of each sector absent a split of the fixed gear cod TAC.

Given these circumstances, no definitive determination can be made regarding whether this action would negatively impact participants in the BSAI fixed gear cod fishery, and thus, whether these may be considered environmental justice impacts. However, the action proposed in this amendment is to continue or modify the current cod allocations among the BSAI fixed gear cod sectors, based on the historical distribution of the harvest among the sectors. Thus, regardless of whether one sector would receive an economic benefit upon approval of this action relative to the situation that would exist if no action was taken, it has been determined that the proposed actions do not appear to have any significant individual or cumulative environmental or human health effects, thus no distinct population, minority or otherwise, should be affected in this regard.

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Appendix A: First Wholesale Revenue Methodology

The amount paid to the first processors of fish for their product is the first wholesale revenue. This revenue was estimated by creating an average annual round first wholesale price per ton using wholesale value information in the State of Alaska's ADF&G 2001 Commercial Operators' Annual Reports (COAR) and volume information from NMFS's 2001 Weekly Production Reports (WPR). The Inshore/MS (mothership) price reflects fish purchases across all gear types because processors are not expected to track the flow of fish through a plant by gear type. Likewise, the Inshore/MS WPR data contains data across all gear types. In addition, the COAR reports do not require plants to submit production figures for the BSAI and Gulf of Alaska separately.

The basic methodology was to merge net weights and first wholesale values from the COAR with the federal weekly production reports by individual processor and product type. When a match occurred, a processor specific estimated wholesale value was computed by multiplying each company's WPR product weights by its COAR wholesale price. A weighted average annual first wholesale price for a given sector and product was computed by dividing the sum of the company specific estimated values by the sum of the associated WPR weights. The WPR net product weights were used as weighting factors because the COAR shore based production figures include harvests from all gear types and all areas.

Once wholesale values were developed for each product, a round weight estimate of Pacific cod harvested was computed from primary products identified in the WPR data. The first wholesale price was simply the division of the total wholesale values, across all product types, by the estimated total round tons of Pacific cod harvested.

Although in theory there should be a one-to-one association of COAR and WPR product forms for each processor, some products from the WPR data had no accompanying COAR wholesale values. In other instances, some products had an insufficient number of observations from the COAR data to meet confidentiality reporting thresholds. In these cases, a COAR first wholesale price from an expanded group of companies was used. These substitution prices are described in step 6 below.

Methodology:

1. Non CDQ BSAI Pcod records were selected from the 2001 WPR data file and the reported tonnages were summed for each processor and product form.

2. Processors who were active in the 2001 BSAI directed Pcod fixed gear fishery were identified from the NPFMC Amendment 77 database. A list of state processor codes for the inshore/mothership processors was created from the ADF&G fish ticket portion of the database, and a list of federal permit numbers for the freezer longliners and pot C/Ps were selected from the NMFS blend data portion of the database. Federal permit numbers were added to the inshore processor list.

3. The COAR data was added to the WPR summarized records on a company-by-company and product-by-product basis. This procedure helped to improve the matching of the two source files, as any mis-matching in coding conventions became apparent.

4. The matching procedure allowed a comparison of the COAR data's volume to the WPR data for the inshore sector (below). The COAR weights are generally larger than the corresponding WPR weights. Again, this is because the COAR production data includes data from all gear types and all areas.

Product	% COAR wts/WPR weights
Round	0%
Bait	113%
Bled	45%
Gutted	0%
Western	112%
Eastern	141%
Salted & Split	85%
Roe	127%
Pectoral Girdles	0%
Heads	48%
Belly Flaps	16%
Boneless, Skinless Fillets	167%
Deep Skin Fillets	107%
Surimi	100%
Minced	100%
Meal	123%
Oil	40%
Milt	136%
Stomachs	93%
Bones	1433%

5. Individual processor data were reviewed for outliers. One COAR entry with a wholesale value of $.009/lb was eliminated from the average price calculation..

6. As mentioned previously, some products had either no associated COAR wholesale value or too few responses to display a price. In these cases, a larger pool of COAR reports were used to produce a price. Substitute wholesale prices for the Inshore/MS sector for round, bled, gutted, eastern, heads, belly flaps, surimi and 'other' product types were taken from COAR summaries from shore based processors located in the Kodiak, Peninsula, Dutch Harbor, Bering Sea, and Adak areas. In addition, the shore based 'other' price was used for the hook-and-line catcher processor sector. There were too few pot catcher processor COAR reports to enable the computation of a C/P gear specific wholesale price.

7. The prices in Table A-1 were applied to all weights in Table A-2, creating a first wholesale value for each product and also the total wholesale value across all product types. The non-discloseable totals were then masked.

8. Product recovery rates from the NMFS were then applied to the processed net weights for primary products (including the WPR meal data with primary, rather than ancillary, codes), to create the round tons of Pacific cod figure shown in Table A-2. The round weight wholesale price came from the subsequent division of the total wholesale values by these round ton figures.

The first wholesale prices developed by this methodology are show in Table A-1 below :

Table A-1 First wholesale pounds and prices by product form and processing sector, 2001

	Inshore/MS		Freezer Longliner		Pot C/P	
Product	WPR Pounds	$/lb	WPR Pounds	$/lb	WPR Pounds	$/lb
Round	*	$0.53	80,102	$0.30	0	
Bait	491,379	$0.42	30,322	$0.50	0	
Bled	310,540	$0.49	0		0	
Gutted	*	$0.75	0		0	
Western	7,313,214	$0.96	23,296,548	$1.19	954,594	$1.19
Eastern	1,672,002	$0.78	67,120,352	$1.08	2,296,807	$1.08
Salted & Split	9,291,604	$1.43	0		*	$1.43
Roe	1,964,215	$2.09	1,777,406	$1.90	*	$1.90
Pectoral Girdle	*	$0.00	0		*	
Heads	*	$0.19	*	$0.25	0	
Belly	*	$0.36	0		0	
Fillets, Skinless, Boneless	4,065,207	$1.65	*	$1.35	0	
Fillets, Deep Skin	*	$1.89	0		0	
Surimi	*	$0.55	0		0	
Minced	*	$0.62	0		0	
Meal	3,321,561	$0.31	0		0	
Oil	532,953	$0.16	0		0	
Milt	1,125,572	$1.37	844,763	$0.84	0	
Stomachs	403,896	$2.34	1,731,028	$1.63	30,871	$1.63
Bones	83,911	$0.15	0		0	
Other	*	$0.59	17,740	$0.59	0	

* confidential

NPFMC summary of 2001 NFMS WPR data and ADF&G COAR data

Table A-2 shows the WPR weights for wholesale products for each sector. Products which did not meet the confidentiality reporting thresholds are masked, but their weights are included in each sector's total.

Table A-2 Pounds of product by sector, 2001

Product	Inshore/MS	Freezer Longliners	Pot C/P
Round	*	80,102	0
Bait	491,379	30,322	0
Bled	310,540	0	0
Gutted	*	0	0
Western	7,313,214	23,296,548	954,594
Eastern	1,672,002	67,120,352	2,296,807
Salted & Split	9,291,604	0	*
Roe	1,964,215	1,777,406	*
Pectoral Girdle	*	0	0
Heads	*	*	0
Belly	*	0	0
Fillets, Skinnless, Bonless	4,065,207	*	0
Fillets, Deep Skin	*	0	0
Surimi	*	0	0
Minced	*	0	0
Meal	3,321,561	0	0
Oil	532,953	0	0
Milt	1,125,572	844,763	0
Stomachs	403,896	1,731,028	30,871
Bones	83,911	0	0
Other	*	17,740	0
Total (includes confidential)	34,927,187	95,317,047	3,968,214

* Confidential

NPFMS summary of 2001 Weekly Processor Reports

Table A-3 shows the wholesale price per ton of round cod in the box outlined in bold.

Table A-3 Estimated 2001 first wholesale value per ton of round cod

Product	Inshore/MS**	Freezer Longliners	Pot C/P	PRR
Round	*	$23,950		1.00
Bait	$206,379	$15,161		1.00
Bled	$152,165	$0		0.98
Gutted	*	$0		0.85
Western	$7,020,685	$27,722,893	$1,135,967	0.57
Eastern	$1,304,161	$72,489,980	$2,480,552	0.47
Salted & Split	$13,286,994	$0	*	0.45
Roe	$4,105,209	$3,377,071	*	
Pectoral Girdle	*	$0		
Heads	*	*		
Belly	*	$0		
Fillets, Skinnless, Bonless	$6,707,592	*		0.25
Fillets, Deep Skin	*	$0		0.25
Surimi	*	$0		
Minced	*	$0		
Meal**	$1,029,684	$0		0.15
Oil	$101,261	$0		
Milt	$1,542,033	$709,601		
Stomachs	$945,117	$2,821,575	$50,320	
Bones	$12,251	$0		
Other	*	$10,467		
Total (includes confidential)	42,244,744	$107,772,726	$4,663,530	

Estimated Tons of round cod ***	33,590	100,229	3,939
$/Ton	1,258	1,075	$1,184

* Confidential

** Only meal products which reflect a primary product type are included in the estimated tons purchased below.

** Includes deliveries from all gear types: trawl, jig, and fixed gear. Therefore, the value per ton for fixed gear deliveries is likely underestimated.

Discussion:

The WPR data does not contain a gear break-out, so the amount of product in the inshore sector is large relative to the amount of fixed gear Pacific cod processed. Lumping all gear types in this calculation may underestimate the price of inshore fixed gear products. The price differences masked by including all gear types would likely have been due to the freshness and quality of the raw fish delivered.

The regulation requiring the submission of COAR reports from offshore C/Ps was not in effect during 2002. The product mix information in Table A-2 shows that the catcher processors produce mostly H&G products. Shorebased processors, on the other hand, produce a wide variety of products. Caution must be exercised when using the product mix for inshore processors. These plants often take cod deliveries from vessels using different gear types during the same reporting period. Trawl gear deliveries may have been much larger than fixed gear catcher vessel deliveries. Therefore, the product mix information for catcher vessel deliveries may more closely represent products produced from trawl deliveries than the fixed gear.

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